

The MARINE CORPS GAZETTE

Colonel Elisha Theall, U. S. Marine Corps, Editor

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THE POST EXCHANGE DETAIL

LIEUTENANT SAMUEL F. HOLLINS, U. S. M. C.

UNDOUBTEDLY the most unpopular detail in the service is that of post exchange officer. A glance at court-martial records will show that this unpopularity is well founded for the post exchange detail has been the stumbling block for many young officers. The financial risk is all out of proportion to the officer's regular pay, and in many cases an officer's pay has been checked for a considerable period of time in order to make up shortages in post exchange accounts. Too often the exchange officer learns to conduct exchanges by experimenting, but sometimes with disastrous results to himself and other times with unprofitable results to the exchange. There is no doubt but that a well-conducted exchange adds materially to the contentment of a command in furnishing the men with necessary articles at reasonable prices, and by competition it checks outsiders from engaging in profiteering as extensively as they otherwise would.

Although the post exchange detail may be irksome in requiring close attention to details, it is good business experience for the officer. The success of an exchange depends upon the business ability of the exchange officer and his steward. The exchange officer and the steward should be business men and should run the exchange the same as they would run their own business on the outside, only being more careful with exchange funds than they would be with their own, because they are trustees of the members of the command. The post exchange officer should not be burdened with other military duties. One who properly manages an exchange, and does the buying, etc., has little time for other duties. Where he is given other duties that take him from the exchange, it is not right to expect and he should not be held to a strict accountability for the management of the exchange.

Too much care cannot be exercised in selecting the attendants. For the efficiency of the service it is advisable to utilize men sent home from the front as incapacitated for line duty or retired men; Section 30 of the Post Exchange Regulations reads, "All attendants of the exchange should be men of excellent record and character. They should be without extravagant tastes, and men who are able and satisfied to live within their means."

Recently a post exchange steward at an army post was tried by general court-martial for misappropriating funds. He had been buying diamonds and had purchased a Stutz car, and nothing had been done until finally the shortage became so apparent that it could not be overlooked. When attendants begin to invest in jewelry, it is time to relieve them from duty. It is very desirable, in fact, to transfer men every three or four months, for, as the old adage goes, "A new broom sweeps clean," and most exchange frauds have been committed by long-trusted attendants. Most of the irregularities in post exchange funds would have been discovered before the shortages grew at all if the Exchange Regulations were followed. Most men are honest, but it is advisable to remove temptation as far as possible. Careful periodic reading of the Post Exchange Regulations and strict compliance with them will prevent most of the difficulties. Sometimes attendants are dishonest and will falsify figures by manipulating the elimination key of the adding machine or some similar device. Most of the shortages are discovered after a long period in which no inventory has been taken. Too much care cannot be used in taking an inventory.

Another avenue of fraud is opened up when the officer permits the attendants to do the buying. Unscrupulous salesmen are always willing to make it easy for the attendants to be dishonest. If you will buy a dozen bracelets they will offer you one free. Cases have been known where exchanges have paid for goods that were never received or perhaps never shipped, and other cases where those in charge of the exchange received a part of the commission that the salesman received from his house on the goods sold to the exchange.

A large percentage of the thousands of business failures each year are due to poor bookkeeping. A large post exchange is nothing more than a good-sized general merchandise store, and a good system of bookkeeping is necessary if those in charge are to be kept out of trouble. Good bookkeeping and carefully taken inventories are essential to a successful exchange. The provisions of Post Ex-

change Regulations are so complete that it would seem that the bookkeeping systems should be almost identical, but it is doubtless safe to say that there are no two exchanges in the Marine Corps keeping their books in the same way. In large exchanges care should be exercised not to develop a too-complicated system. There is a tendency for officers to fall in love with their system and to think more of it than of the success of their business. The accounting for the exchange should be systematic and simple, yet sufficiently extensive to maintain a proper record of the business transactions. There should be a uniform system of bookkeeping in all Marine Corps Exchanges. At the present time an officer who has been conducting a post exchange at one post and who is transferred to another post and detailed as exchange officer, finds that he has to master the system in use at the particular post. Many officers never go to the trouble of doing this and rely on the honesty of the men in charge. The efficiency of exchanges in general would be increased if a uniform system were used. Until such a system is adopted it is advisable for officers starting a new exchange to secure a sample of the forms used by other exchanges and in that way they can devise a system adequately extensive for their business. Although a good system is a valuable help, it isn't so important what system is used as it is how well the system used is carried out.

Next in importance, after bookkeeping, is buying. Like any ordinary business the success of an exchange depends upon the business judgment of the person intrusted with the buying. Nearly every exchange that has been in operation for any considerable period of time has a stock of unsalable goods on the shelves. Such stock represents a large part of the capital removed from active use and causes considerable inconvenience when the exchange is being moved or closed out. The volume of profits depends upon how often the stock is turned over rather than how large a percentage of profit is made on each sale. Quick sales (which means quick turnovers) and small profits should be the aim of the exchange officer. It is far more profitable in the long run for the exchange to make 10 per cent. on goods turned over, say, every fifteen days, than to make 25 per cent. on those that stay on the shelves for six months or so. Displayed goods deteriorate in value and frequently become unsalable. If it were advisable to handle only quick and easy selling articles, such as candy and tobacco, the running of a post exchange would be comparatively easy, but in order to make the exchange

fulfil its proper functions it should, just for the convenience of the command, carry many articles in which there is only a small margin of profit. Care should be exercised in not over-buying such goods and usually they should be purchased only in small quantities. Wherever quick transportation facilities permit, all goods should be bought direct from the manufacturer, thus saving the jobbers' profits. Soaps and toilet articles, especially, can be bought from the jobber to good advantage; but sometimes, on a rising market, goods can be purchased cheaper from the jobber than the manufacturer. Experience has shown that it is inadvisable to attempt to buy tobacco direct from the manufacturer, as deliveries cannot be depended upon.

Only good merchandise of the best standard brands should be handled. Ordinarily a post exchange has no time to assist a manufacturer in developing a market for a new article. It is rarely necessary for a post exchange to carry more than two hundred different items of stock, except at outlying posts.

Some salesmen are considerate and do not wish to overstock the inexperienced exchange officer, but others are willing to "kill the goose that laid the golden egg" in order to get one large order. One army officer, elated over his large sales during a session at a training camp, purchased several thousand dollars' worth of candy, most of which spoiled during hot weather, and was later condemned, thus losing more than the entire summer's profits for the exchange. Ordinarily articles should be bought in quantities not larger than that actually required in a turnover, *i.e.*, time to sell the goods. For most articles that would mean a month's supply. Sometimes, however, transportation facilities and market conditions compel you to buy in larger quantities. It is always better to run short than to be loaded with dead stock and be compelled to expend a lot of spoiled goods.

When it comes to selling goods, there is absolutely no difference between an ordinary civilian business and a post exchange. The mere fact that a post exchange is in its nature a co-operative society owned by the members of the command and usually sells at lower prices than prevail outside, does not mean that it is unnecessary for the attendants to be courteous and accommodating to the customers.

As advertising pays on the outside, so also does it pay to advertise goods sold in the post exchange. Slides run on the moving picture screen will bring surprising results. Alphabetical lists of the articles kept for sale in the exchange should be printed and dis-

tributed periodically. It is important that goods be displayed in an attractive manner, because many extra sales are made as a result. Displayed goods should be kept on the move and not be permitted to become shopworn. Many ideas can be gathered from visiting exchanges elsewhere and progressive retail stores in nearby cities.

Unsalable merchandise should not be kept on the shelves. There will usually be some things that move slower than others and a little extra advertising or special sales will move such goods that would ordinarily become dead stock.

If the exchange officer is to escape the many pitfalls that lie in his path, he must give his careful attention to the exchange and frequently check the accounts of his subordinates and constantly watch the details.

RIFLE TRAINING AND INSTRUCTIONS FOR SMALL ARMS FIRING BEFORE GOING ON THE RIFLE RANGE

FIRST LIEUTENANT E. E. BRONG, M. C. R.

PART I

OBJECT OF SYSTEM OF INSTRUCTION

THE object of the system of rifle training and instruction employed in our service is two-fold:

1. To make of individuals, qualified marksmen, who in battle will make hits instead of misses.

2. To make of *organizations*, pliable, manageable machines, capable of delivering in battle a volume of *effective* fire.

To make of *individuals*, qualified marksmen, who in battle will make hits instead of misses. This is accomplished by *individual* training and instruction whereby the skill of the soldier as a rifleman is so developed as to be up to the capabilities of his rifle. To accomplish this end erect an A, B, and D target, have your class form in front of these targets and have series of lectures in the following:

THE REASON WHY

How to set sights.

How to sight or aim.

How to hold the rifle in all positions, and the general principles.

The care and cleaning of the rifle.

Dimension of targets.

Padding.

The sling.

Blacken the sights.

The prone, sitting, and kneeling positions.

Examine each clip before placing it in the magazine.

Never cant the rifle.

Do not breathe while aiming.

Focus your eyesight on the target.

Hold directly under and on the bullseye.

Squeeze the trigger.

Do not yank the trigger.

Always snap in once or twice before actual firing.

Call the shot.

Zero of the rifle.

The quarter point windage rule.

The square or elevation rule.

Call the number of your target before rapid fire.

Keeping the score book.

Range duties.

Score boards.

Spotters.

Markers.

Range rules.

Pay attention to the coach on the firing line.

The reason why, should be given as a lecture and all points explained in detail. This cannot be given too often, nor should it only be given to the man a week or two before going on the range, but should be taken up at all posts in the Marine Corps as a daily routine. No doubt the average officer of to-day has a daily ceaseless grind of drill; should not every company or organization commander thoroughly familiarize himself with *the reason why*, as thoroughly as he is acquainted with the company in close and extended order drills? So he can impart it to his men.

PART II

The instruction in sighting or aiming must be thorough. The steps of instructions are as follows:

Explain the matter of aiming by placing a rifle on a rest so the rifle cannot move when sighted on a regulation target, the A and D target at a distance of 2 and 300 yards, this in order to give the men an idea how the peep sight should look when actually firing at these ranges. The same method to be employed at 5 and 600 yards; then have another tripod with sand bag rest at the same ranges, require each man to place and aim the rifle himself. Then inspect it. As the battle sight is not used in the Army course it should not be neglected to show the men the proper aim for the battle sight.

To teach the men the trigger squeeze: place the rifle in a rest so it cannot move after having sighted the rifle in properly at a B target at 500 yards, then require each man to practise the trigger squeeze. Each man after squeezing the trigger will then note that

he has still the same aim as he had before squeezing the trigger and as it should be at the instant of the discharge of his rifle.

Rapid Fire.—When men fail to qualify on the range it is as a rule due to the poor shooting at rapid fire, at 2, 3, and 500 yards, due to the fact that the men do not get enough training in snapping in on the D target. This can be overcome by having a wooden target painted regulation size. This may be erected on the parade ground at a convenient place. The companies at their daily drills should be required to go through the rapid fire exercise in the same manner as on the range, with the exception that the rifle is not loaded. This should be continued throughout the year whenever troops are at drill under arms for at least fifteen minutes; and not only for two or three weeks before going on the range. With this continuous instruction the men when stepping on the firing line for rapid fire will have confidence in themselves and know that they have plenty of time to fire their ten shots, and not that they must hurry to get in their ten shots in the time allotted, yank the trigger and not take proper aim.. It should be impressed upon the company commander's mind that this daily drill is absolutely a necessity, more so than his daily troop inspection.

ADMINISTRATION AND THE MANAGEMENT OF MEN*

COLONEL DAVID C. SHANKS, INFANTRY

THE American Army does nothing by halves. Whatever it undertakes to do is done with its whole might. More than thirty years ago, the discovery was made that the Army lacked training in small-arms target practice; the deficiency was remedied with a rush. For many years the entire Army blazed away, spending a large part of each summer on the target range. Every other kind of training was neglected while the various organizations conducted a furious campaign for a creditable "figure or merit."

A few years later, it dawned upon some one that the Army was undereducated—not enough attention was being paid to the theoretical education of officers. The Army soon became a great school with lyceum and lecture courses. Garrison schools and postgraduate work paved the way for the Army School of the Line, the Staff Class, and the War College. Following in due time came the demand for the abolition of much that was useless and wearisome in the incessant close-order drills, and the substitution therefor of a practical course in field training.

These were all steps in the right direction, and met a real and genuine need; a useful work was accomplished. The Army is far better by reason of the attention that these various subjects have received, and the enthusiasm expended upon them. There is still room for a wider and more comprehensive course of instruction in every branch of army education and training.

It has seemed to me, however, and the impression has been growing much of late, that there is one real, ever present need that does not receive the consideration that it deserves: I mean the management of the soldier as a man apart from his training as a soldier. There is much, very much, that remains to be done in the improvement of our men in discipline; in contentment; in neatness of dress and general appearance; and in such higher regard for the oath of enlistment as will bear fruit in substantial reduction in the percentage of desertions. These are problems which are ever present.

* From *Infantry Journal*, November–December, 1916.

In inclement weather, on Sundays and holidays, and after the recall from drill, the task of training the soldier is suspended. The task of his management as a man is present for each hour of every day in the year.

The management of men is a vast unbounded sea upon which the young officer sets sail without pilot and without chart. So far as I know, there is no text-book nor treatise to guide him in this, the most important feature of his profession. Neither at West Point nor at the service schools does the subject receive any considerable attention. If there were any such text-book at West Point, one of its most important chapters should be devoted to pointing out the faults of the "yearling corporal" idea in the treatment of men. The harm in the yapping, yearling-corporal method is more dangerous to the older cadet who uses it than to the "plebe" to whom it is applied. Long indulged in, it becomes a fixed habit, and the graduated cadet, thus afflicted, brings with him to his new regiment an idea and a manner that works no good to himself and only harm to his men. There are unfortunately some officers who have never been able to rid themselves of the yearling-corporal manner and who seem to feel that petulance and impatience are indicative of efficiency. Such officers forget that no man can successfully control others who cannot control himself. They forget, if they ever knew, those paragraphs of the Regulations to the effect that "military authority will be exercised with firmness, kindness, and justice" and that "superiors are forbidden to injure those under their authority by tyrannical or capricious conduct, or by abusive language."

The Army will soon receive a vast influx of new officers, and the lump must be leavened. We have books galore on all sorts of technical subjects; but in the most important and most difficult of all subjects, there is not even a pamphlet. Men are the tools of the military profession, yet there is no instruction as to how they may best be used. A few paragraphs of the Army Regulations, such as those to be found under "Interior Economy of Companies" and a scattered general order or two, complete the literature available.

Fortunate indeed is the young officer who joins a company commanded by a capable and experienced captain. There he may have opportunity to learn by experience. But after the long list of promotions has taken effect, experienced captains will be rare—they will all be majors. In time of active service, we all know what inordinate

drafts are made for officers on account of those needed on detached service. It is always the experienced officer who is taken; the inexperienced is left behind.

In the Philippine insurrection, the green second lieutenant was left to command the company while his captain or first lieutenant went on detached service as "Captain of the Port" or "Collector of Internal Revenue" or some other equally important duty. It is not a matter for wonder that some organizations were not as well commanded as might be; he would be a genius indeed who can successfully command men without experience and without assistance. But even in time of peace, when the company has its captain with it, there would be profit—much profit—if the handling of men received more attention. In my judgment, there is no other field so fertile, none that promises such good returns and yet remains uncultivated.

An experience of something over three years as an inspector has shown me how varied are the results attained under conditions that are identical. In the same post, under the same commanding officer, wearing the same uniform, fed with the same rations, drawing the same pay, and occupying barracks alike in construction are to be found organizations widely different in respects of discipline, contentment, set-up, neatness of appearance, and general efficiency.

Our regulations state that the commander of an organization is responsible for its training, its management, and its efficiency. Common sense will tell us that no petty rules of thumb can be laid down to tell any officer how he may successfully manage men. That is an art to be learned, if at all, only by experience; and the final results will depend, in large measure, upon the personal equation of the officer. There are some officers who will never succeed with troops—they lack a certain undefinable something that spells the difference between success and failure. This is oftentimes not due to lack of effort. Some of the hardest working officers I have ever known have been among the greatest failures with troops—they nagged their men to desperation. Any man would be foolish to imagine for a moment that he can set down on paper rules that will insure the successful running of an organization. I shall certainly not attempt it. But to deal merely in generalities—to find fault and to suggest no remedy—is a waste of time and paper.

It is therefore with some considerable hesitation that I undertake to set down, not rules, but what I believe to be some salient principles. There is not an original thing among them. They are

merely the ideas that have been impressed upon my mind by the opportunities I have had of seeing and comparing various organizations and of noting the good and bad points of each.

I

THERE SHOULD BE A PROPER DISTRIBUTION OF DUTIES, GIVING TO EACH OFFICER AND NONCOMMISSIONED OFFICER HIS APPROPRIATE SHARE

In the tactical training of officers and men, there is no principle so universally recognized and insisted upon as the allotment to each subordinate of his appropriate duty and non-interference with him so long as he does well. It is a correct principle and works well. It is the means we rely upon to give to the subordinate the opportunity and the experience necessary for developing efficiency and confidence in himself. But in the ordinary routine administration of most organizations, this principle is neglected entirely. In many companies, the captain and the first sergeant monopolize all authority. There is no intermediary. Nobody else attempts to exercise any authority. The lieutenants rarely assist the captain except at drill. Subordinate noncommissioned officers refer every question to the first sergeant. The corporal is frequently never called upon to exercise any authority except on guard or in charge of fatigue parties. At drill he gives the commands "Squad, halt" or "Follow me"; when the recall sounds, his authority ends, his duty is done. No one but the captain and the first sergeant receives any training or any experience in the handling of men because no one else has the opportunity. When the time comes for a lieutenant or a subordinate noncommissioned officer to step into a more responsible place requiring the control of men, he has no conception of the command function because he has had no actual experience. A man may stand on the bank and watch others swim week after week; but to learn how to swim, he must himself go into the water.

In the old days when companies were small—not exceeding fifty men each—and when the companies were filled with old soldiers, it was not a difficult job for a good captain and an efficient first sergeant to manage a company on the individual plan and without help from subordinates. Even now, with some of our organizations at war strength, good results are occasionally obtained in the old way. I have in mind one or two organizations managed on that principle which are remarkable because they show the remarkable efficiency of the captain and the no less remarkable efficiency of the first sergeant.

But what would happen to such a company if the captain and the first sergeant left it simultaneously? Within a fortnight it would go to pieces because no one else has been trained to step into the breach.

Let us see what the regulations require:

II

Paragraph 287. A thorough police of barracks will precede the Saturday inspection. The chiefs of squad will see that bunks and bedding are overhauled, floors, tables, and benches scoured, arms and accoutrements cleaned, and all leather articles polished.

Paragraph 288. Chiefs of squads will be held responsible for the cleanliness of their men. They will see that those who are to go on duty put their arms, accoutrements and clothing in the best order, and that such as have passes leave the post in proper dress.

There are few organizations where these paragraphs of the regulations are enforced. When a captain picks out a private and makes him corporal, he cannot tell in advance what sort of noncommissioned officer he is going to make.

Neither can he tell much about the corporal if he hears him say only "Squad, halt," or "Follow me." I have many a time heard a captain say that he was surprised and disappointed in the poor showing made by some sergeant who had just been promoted from corporal. The time to try out the corporal is when he is a corporal. Give him the seven men of his squad; tell him they are his to look after, to instruct, and to manage. Tell him he is to look after the condition of their bunks, their equipment, their cleanliness and their behavior. Put the corporal on his mettle. When his squad is unusually good at inspection, it will do no harm to say, "Corporal, your squad was in good shape to-day." All of us like an encouraging word now and then. When the corporal's squad is not in good shape, tell him so, and tell him what was wrong. In other words, give the corporal a real job. If any man of his squad has muddy shoes at the foot of his bunk, or hair that needs trimming, or grease spots on his coat, speak to the corporal about it. The commissioned officer ought never to do the corporal's work; it is sufficient if the officer sees that the corporal does his work and does it well. It is only by holding the corporal strictly to his job that he will get the idea that it is really and truly incumbent on him to look after his squad in the way that the regulations require.

I have seen some organizations in which excellent results were attained because the captain instituted a healthy rivalry between various squads of his company. A tactful captain can do much in this way, for competition is a keen incentive, and the men of the squad as well as the corporal become interested in winning for themselves the credit of being regarded as the "crack" squad of the organization.

In some well-managed organizations, the men are graded into several classes or sections. The men of the favored section have more in the way of privileges than those in the next section, while those in the bottom section have no privileges at all except by special permit. When this plan is judiciously worked out, it produces good results in the hands of a captain who has the entire confidence of his men, for they then strive to get into the more favored class. Having gotten into one of the favored sections, they strive to remain there, lest they lose caste and privileges at the same time.

I have found no organizations where the chiefs of squad are required to see that men going on pass leave the post in proper dress. Yet why not? The regulations require it, and the corporal has but seven men to look after. Why not make him do it, and do it thoroughly? Then when the time comes to make a sergeant, it will not be such a leap in the dark. If a corporal, after a little seasoning, cannot look after seven men and do it well, it is certain he will not satisfactorily perform the larger duties of sergeant.

In proper sequence, each line sergeant should have under him the squads assigned to his charge. In the supervision of these squads, he should as far as possible deal with the corporal. The captain should deal with both. In short, every noncommissioned officer should have a job. When anything goes wrong, every man whose business it was to supervise that particular work should be held up, and responsibility for the failure established.

It takes a tactful captain to get the proper work out of his lieutenants. Many are assigned no work at all except at drill or at tactical instruction. There can be but one officer in command of a company, but that is no excuse for letting the lieutenants remain ignorant and go to rust for lack of opportunity to learn their profession. The best training for inexperienced lieutenants will be given by assigning to each in turn certain duties as the captain's representative in the management of the company mess, the daily inspection of barracks, kitchen, mess hall, etc., office work, prepara-

tion of rolls, returns, routine papers, etc. One excellent form of training for a lieutenant is to place him in charge of gymnastics, athletic events, and company amusements. Perhaps the proposed vocational training may open a new field for the activities of lieutenants. It will give opportunity for the handling and the management of men. No inexperienced officer can afford to neglect an opportunity to gain the experience he needs so much.

Following out the scheme above outlined and required by the regulations, every officer and every noncommissioned officer will have something to do. The captain will have supervision and control but will exercise it in such a way that all of his subordinates are receiving training of the right kind—a training that will enable the machine to continue to run smoothly even though the captain and the first sergeant should be simultaneously called away.

Turning to the battalion, a step higher in routine administration, let us see what the regulations require.

III

Paragraph 245. A battalion commander is responsible for the instruction, tactical efficiency, and preparedness for war service of the troops of his battalion under his immediate charge. Correspondence relating to the personnel, instruction, discipline, or equipment of a company, battery, or troop in battalion or squadron will pass through the battalion or squadron commander. No official record, however, of such correspondence will be kept by the battalion or squadron commander.

If there is a single post or a single regiment where this regulation is fully complied with, I have never seen it.

A major ought to have an opportunity to know his battalion. If he does not, he goes to rust like the cogs in a wheel which never moves. Not only in the general case are the above requirements neglected, but it is not rare to find post headquarters dealing directly with first sergeants of companies in matters which should receive the attention of the company commander. It is faulty administration which brings this about.

We are all familiar with that class of commanding officer who wants to do everything and run everything himself. If he wants teams or transportation of any kind, he telephones or sends direct to the corral. The quartermaster learns about it incidentally. If he wants any information about men or things in a company, he gets

it direct from the company clerk or the first sergeant. No system is better calculated to make worthless or inefficient subordinates than to neglect and ignore them.

Many years ago, I recall being at a post where the weather was intensely hot. It was before the days of cotton uniforms, and the troops wore the heavy blue blouse. Post orders required that the blouse should always be kept buttoned, and the post commander was quite watchful in regard to his order. As the weather was hot, the order was violated to a great extent. Whenever the commanding officer observed a soldier with his blouse unbuttoned, he would send his orderly in a hurry for the man and give him a good dressing down and occasionally a trial. His orderly was generally very busy. Ever little while, there was issued a fresh memorandum circular calling attention to the failure to keep blouses buttoned, but no company commander was held to any accountability.

After a time, the permanent commander went on leave, and was replaced by the second in command. He did not issue any fresh circular. It wasn't long before he saw a man with his blouse open, and he found to what company the man belonged. He said nothing to the man, but to his orderly he said, "My compliments to Captain A and say I want to see him." When the quiet interview with Captain A was over, there was no doubt in the captain's mind as to his duty in the premises. I heard the interview, and I saw the difference between the method of one commanding officer trying to run a post on the personally conducted plan and another requiring his subordinates to do their proper work while he exercised general supervision.

IV

INCULCATING PRIDE OF THE SOLDIER IN HIMSELF AND HIS ORGANIZATION

The American Army is one of the most conservative institutions in the whole world. Customs and methods change more slowly in the Army than in any other place I know.

For a long time the only way of maintaining discipline was by punishment.

Fear of what would happen in case of dereliction was the main incentive to do right. Looking back over my four years at West Point, I can recall but a single bit of advice relative to the management of men. It was from an instructor in law who advised his sec-

tion to strive as young officers to establish a reputation of being absolutely impartial—to prefer charges for every absence and every dereliction. In this way the men would know what to expect, and would have no grievance. Even now we have officers who know no other method. The green recruit and the "old soak" are all in the same boat; to them all soldiers are as alike as pawns on a chess-board. To such officers any attempt to consider the human, the personal element in the soldier is childish; any attempt to control by other means than that of fear is pooh-poohed as balderdash or "weak attempt at moral suasion."

To be sure there is to be found, now and then, a soldier to whom all appeals are useless. To such a man the methods of force are obligatory, and should be applied freely and unhesitatingly. But, if he is given opportunity, the average soldier will respond surprisingly well to appeals to his pride.

Of all ordinary offenses, drunkenness is the one that is most prevalent and that gives most trouble to the company commander. The drunken soldier must be restrained, and must be punished. The object is to keep him from getting drunk again, and to save him from becoming a chronic drunkard. In my own experience as a company commander, I never found any other method as useful to me when a soldier had sobered up as to bring him alone into the orderly room, look him squarely in the eyes, and say: "Jones, don't you feel ashamed of yourself? Your conduct is hurting yourself and your company too." The man in uniform is just as much subject to remorse as the man in civilian clothing. It was a very exceptional soldier who would not say: "Yes, Captain, I do feel ashamed, and I am going to keep sober next pay day." Then was the time to say: "All right, Jones, I am going to watch you next pay day, and see if you are man enough to keep sober." And in Heaven's name, if Jones does come through successfully, don't fail to find opportunity to let him know that his victory has been observed.

It is not a bad plan to do this at inspection in ranks—the men standing adjacent will hear the captain's recognition of Jones's improvement and they may be depended upon to tax him thoroughly should he fall again. A little touch of the human element now and then, a word of encouragement from the captain at the right time, will help many a young soldier to find himself, and bring him to feel something of that personal pride in himself and his record which is the very foundation of every good soldier.

Speaking of the pride of the soldier in himself leads me to remark that the captain needs a bit of pride as well. There are some company commanders who are always preferring charges. The average soldier soon loses interest in his efforts to keep a clean record when every little dereliction is sufficient to bring him before the summary-court officer. Under existing regulations, there is much power in the hands of the company commander; company punishment and the withholding of privileges will control all except the hard cases. The captain who is always preferring charges thereby acknowledges that his men have gotten past him and that he has had to call for help—thereby losing an asset of great value. A company likes to feel that its captain is a strong man—strong enough to manage his men without always having to rely upon extraneous aid.

There is one other small matter in which the captain should be careful, and that is the matter of personal acquaintance with his men. There are captains who have been in command of their companies for months but who if they want to speak personally to some man, have to ask the sergeant for the man's name. The captain who cannot call by name every man of his company needs to set about acquainting himself with his company at once.

And now we come to the pride of the soldier in the organization to which he belongs. General Sherman said that an army had a soul as well as a man. If this be so—and it undoubtedly is—then it is just as true that a company has a soul as well as an army. The officer who attempts to manage an organization without ever arousing in it any sense of company pride is doomed to failure. The object of discipline is to command obedience. Of two officers, the one who attains a cheerful, willing obedience is far and away ahead of the one who knows no method except coercion.

We all know the difference between two companies, in one of which the men are contented and have an intense pride in themselves and their organization, and another which lacks all of these things. It is the difference between the living, breathing, healthful man and the corpse.

In the summer of 1886, I was at Fort Leavenworth attending a rifle competition. At that time, no regiment nor even any considerable part of any one regiment was stationed there. It was the custom to select one company or one troop from each of several different regiments and to send it to Leavenworth as a part of the garrison. In 1886, they were casting about for an infantry com-

pany—they wanted a good one—one that would set a proper standard for the student officers. The choice fell upon Company K, 13th Infantry, commanded by Captain Arthur McArthur, Jr. It was a wise choice, and I shall not forget that company, small in numbers but so abounding in spirit and pride as to be notable.

The men all knew why the company had been sent to Fort Leavenworth. Every man felt that a great onus was on him individually. The line at parade showed service stripes on nearly every man from wrist to elbow. When the company was dismissed, no man sallied forth from the barracks who was not so spick and span as to be a marked man at yards' distance. For a man with "K Company, 13 Infantry," on his cap to be sent to the guard house would have been a calamity. There were stories of how one or two, over-bibulous after pay day, had been brought in the back way by companions lest some one might see a K Company man at a disadvantage.

When I was a "youngster," I was serving at a large post at the time of the establishment of the Post Canteen. Everything connected with the running of it was new; nothing had been worked out. The War Department authorized no stoppages; company commanders were responsible for their own collections, and the subject of these collections caused a good deal of anxiety. There was a general consensus of opinion: to the guard house and the black list with any man who failed to pay. Pay day came and went. There were many failures to pay, likewise many in the guard house. One captain had three men who failed to pay. He called them into the orderly room one at a time. Each man put up a sorrowful story about having spent all of his money before he reached the canteen. To each one, the captain made the same reply: "I do not like to have men of my company in the guard house; it hurts the man, and it hurts the company." Then he took from his own pocket the money needed to pay each man's canteen bill, and sent him down to pay it. But it did not stop there. The captain then sought the canteen officer, and learned that the men had paid up. He asked the canteen officer to write him a letter to that effect, and the letter also said that his was the only company at the post which owed nothing. This letter was posted on the company bulletin board. It made a hit. The men of the company thereafter would not stand for any man injuring the good name of the company by non-payment of canteen bills. That company enjoyed a fine reputation while other company commanders swore and reviled and put men in the guard house.

It is a pleasure to see organizations which have in them the breath of life—something over and above the showing made by those driven to duty like dumb oxen. We have a good many live organizations scattered about here and there. Of those I have seen on any considerable scale, our troops in China afford the best example. Several years ago, an efficient colonel brought them up to a high standard (under difficult conditions, too, be it said). He instilled into officers and men the idea that American troops in China should be not only as good as, but better than, troops of other foreign governments. This put his men on their mettle and with excellent results. The troops in China make a good showing because the proper spirit is there.

V

SHOULD A YOUNG SOLDIER BE TALKED TO? IF SO, WHAT SHALL BE TOLD HIM?

What is the usual procedure when recruits join a company? A batch is received at post headquarters. They are lined up and checked over, much as a quartermaster would check over a shipment of mules. No one says anything to them. The adjutant and the sergeant-major tell them off into detachments, and they are sent to their respective organizations. The captain comes along and looks them over; if he is busy, this may be after a lapse of several days. They are turned over to the drill sergeant and are told a few pertinent things about post orders. Perhaps the articles of war are read to them, and they are told of the awful things that will happen if they fail to come up to standard. But has any officer talked to them and told them any of the many things a recruit ought to know and ought to be told at the outset of his career? The chances are against it. They are generally left to drift for themselves. There are exceptions, of course, but these are still only exceptions.

In the fifteen months from March, 1911, to June, 1912, I was stationed at the recruit depot at Columbus Barracks. During that time, I talked to every recruit enlisted at the depot, going daily to the company which had received the last assignment of recruits. Roughly speaking, the number of recruits enlisted amounted to something more than one hundred per week, so that I suppose I talked to more than six thousand men who afterwards went to join the colors. The things I tried to tell them were the things a recruit ought to know. I thought then, and I think now, that every assign-

ment of recruits ought to be talked to, first by the commanding officer, and afterwards by the captain of the company to which he goes.

Consider, for instance, the single subject of desertion. I believe that many a young soldier deserts who would remain faithful to his oath if only some officer would carefully explain to him the difference between an ordinary civil contract and an oath of enlistment—explain it to him, not by printed order, but by word of mouth while the officer looks him squarely in the eyes.

Desertion is one of the troubles that has given the Army a bad reputation for years past. It has been more talked about, and more written about than any other one Army question. All sorts of causes have been alleged, and doubtless all have contributed a share towards swelling the grand total.

In my judgment there is one thing that causes more desertions than any other single thing—perhaps more than all other things combined. With all of his good qualities, with all of his courage, his intelligence, his resourcefulness, there is one respect in which the American is the poorest of all material for making soldiers. From his earliest youth, he has been his own boss. Nothing is so characteristic of the American as independence of thought and independence of action. These are his heritage, and he parts from them with painful reluctance. Now the soldier can be independent neither in thought nor in deed. One of his first, his most important and most difficult lessons, is obedience; his will and his actions must be subordinated to others. This is a lesson which the American learns slowly and painfully. Many find it a bitter lesson and quit in disgust. It is just here that a preliminary talk of the right kind would have best effect and would keep many a young man faithful to his oath.

Tell the young soldier that it is necessary in the Army to have discipline; that each man must conform his will to higher authority; that the captain who commands the recruit is himself commanded by his post or regimental commander, who in turn is subject to still higher authority. Tell him that this is so in every army in the world and that there is nothing belittling or degrading in it. Tell him that in the Army the only way of doing things is by order and not by request; that every soldier has had to learn this lesson; that it is only the weakling who violates his oath; that the strong man stays faithful and serves his country. Tell the young soldier that some of our best

officers came from the ranks, beginning just as he himself is beginning; that he has held up his hand and taken a solemn oath to serve his country; that if he does not keep that oath, he is a quitter despised alike by God and man. If these things were patiently explained to every soldier who enlists and repeated from time to time, I do not doubt that the percentage of desertions would be appreciably lessened.

There are a great many other things that ought to be said at the same time. I can but touch upon them here, for they are things that will come to the mind of every officer.

The young soldier ought to be told carefully of the respect due to the uniform he wears; that his uniform on the streets of the city makes him conspicuous; that it represents the government he serves; that a soldier who wears his uniform into dives and disreputable places or becomes drunk in public places while in his uniform, thereby lowers it in the respect of all beholders. We often hear lamentations that the people at large do not respect the uniform as they should. This is sad, if true. But in my judgment, the place to start the idea of a proper respect for the uniform is in the Army—not out of it. The soldier we can control, the civilian is beyond our reach. As long as our noncommissioned officers and our best men are content to see their comrades reeling drunk in the streets and take no action, we cannot think it strange that the civilian does not always enthuse. Is there any remedy? I think there is. But the remedy lies in the Army, not out of it. In one of the best managed posts I have ever seen, there was a post order positively prohibiting the uniform from being worn into dives and disreputable places. More than this, the order was enforced. Two selected sergeants were placed on special duty. Wearing civilian clothing, they patrolled the unsavory sections of the city in the afternoon and evening with the cordial cooperation of the police force. Every soldier wearing uniform in the red-light district was arrested, confined, and received a sentence of two months' forfeiture and two months' confinement. The soldier found drunk in his uniform fared correspondingly. It did not take long for the idea to permeate that the order was cast-iron and meant to be enforced. I do not say that soldiers did not go into the red-light districts. I do say that it soon became an exceedingly rare thing for one to go there in uniform, and the uniform was spared the corresponding odium.

Many of our recruits are farmers' lads who have left home for

the first time. Desire to travel and to see the world brings many a young man into the Army. Homesickness, sometimes of a severe type, is not an unusual experience of this class. When I was on duty at Columbus Barracks Depot, I was surprised to see the number of recruits who became homesick a few weeks after their enlistment. Many would go absent without leave for the purpose of a few days' visit at the old home. Their explanation generally was that they "just couldn't stand it any longer." They would come back and take their punishment. The young soldier joining his company for the first time is very likely to suffer from homesickness in an acute form. He should be told that in all armies homesickness is a prevalent disease; that the strong man grits his teeth and overcomes it—only the weakling gives up and violates his oath.

In my judgment, a company commander can do no better thing than to advise his men to make regular deposits with the paymaster. This is a good thing for the man and a still better thing for the company. It gives a company commander a grip on his men that is quite helpful. Whenever I have found an organization of unusual excellence, I have noted that as a rule, the descriptive lists showed a large percentage of men with deposits to their credit.

The young soldier joining an organization for the first time is at a formative period of his life. Influences of example at that stage are powerful—evil influences just as powerful as good ones. The young soldier should be cautioned about his companions and warned that he will be judged by the company he keeps. In this connection, it is a good time to warn him about his manners. It does not shock me to hear a soldier or anyone else swear an ordinary oath. But I have never reached a stage where I have not been disgusted at some of the coarse, dirty language that many soldiers habitually use. I have at times heard men, unchecked, use disgustingly dirty, vulgar phrases in the presence and in the hearing of their officers. It will occur to every one just what class of words I have in mind, for they are not unusual.

I think we owe it to ourselves and to the service to put an end to that kind of language—language that would bring a touch of shame to the cheeks of any decent woman. The officer who would like to see it stopped, and yet does nothing, is inefficient. And it would be so easy to eliminate that kind of language from the barracks, the mess room, and elsewhere—nothing more is needed than to lay down the law to the noncommissioned officers; post a notice on the

company bulletin board that disgustingly vulgar, dirty language will not be tolerated; a few tours of kitchen police to first offenders, and the deed is done.

And speaking of the manners of men leads me to remark what a wide difference there is between companies. Drop in casually at the supper hour in one company, and you will find the men at supper all in proper uniform. The captain thinks it is not demanding too much of his men to require them to present a decent appearance while at their meals. Drop in at the next company, and you may find the men straggling in barefoot, in undershirt, denim trousers, or any other old thing that comes handy, looking for all the world like a lot of cowboys at a "chuck-wagon" dinner. One company will have vines, flowers, and a nicely tended grass plot; another will have nothing about the barracks that was not put there by the quartermaster. Whenever there is nothing at all attractive about the barracks, only the bare walls and a gravel walk, it is not likely that men will spend much time there.

There is no better time to show to the recruit "the other side of the picture" than when he first joins his permanent company—and there is no better man to show it to him than his captain, who will be his best official friend in the Army. That is the proper time to let him know that the soldier's life is not one continuous dream of bliss. Let him know that mixed in with its attractive features, there is much hard work connected with the soldier's life—that food must be cooked, floors scrubbed, windows washed, potatoes peeled, and other odd jobs of hard work done from time to time.

It is better that the young soldier know all of these things at the start. All the while, it should be drilled into him that the young soldier who tries to succeed does his part willingly and cheerfully, and that it is only the discontented weakling who is not man enough to stand up to his oath—only the weakling who quits and becomes the deserter false to his oath and false to his country.

VI

CHANGED CONDITIONS OF SERVICE

I cannot close this paper without reference to some of the handicaps and the difficulties under which our officers now labor in the handling of their men—difficulties already great, which, be it said with sorrow, show no signs of decreasing.

In the first place, as it seems to me, times and standards have

changed, and not always for the better. Time was when the notably efficient officer with troops was greatly respected and was regarded as justly entitled to sit in the front row.

This was so from the very nature of the case; thirty years ago, duty with troops was about all there was to American military service. There was no general staff, no detailed staff, and comparatively few on detached service. Other considerations now dominate the situation. In the change that has taken place, efficiency with troops (the most important thing of all) has somehow gotten lost in the shuffle. Unless an officer has made a reputation as a student, as a writer, as an attaché or aide, or in some special line of work, it is not unlikely that his light will continue to burn unobserved.

I do not decry the work of the student—we need more, not less, study on the part of our officers. Our service schools have done, and are doing, an excellent work. Any officer who belittles the importance of theoretical knowledge is behind the times. All that I declaim against is the tendency to believe that the actual value of officers can be sufficiently determined by classroom standards. Some of those who are stars on paper work do not shine so brightly when it comes to getting best results out of men.

If America were at war to-day, and we could bring back to vigorous life such soldiers as Grant, Sherman, Sheridan, Thomas, Lee, and Jackson, they would still be marked men. There are many changes and many things of which they would be wholly in ignorance, but they would all be notable because they were leaders of men.

I have heretofore made mention of General McArthur's company—an organization in which the sense of company pride was so strong that it seemed to ooze from every pore. But let it be remembered that conditions then were far different from those of to-day. At that time there were companies which had been commanded by the same captain for years; a change in the list of sergeants was an event. The foreign-service roster for officers and noncommissioned officers was not then in existence. There were no excessive demands for detached service of one kind or another.

More than that, the esprit of regiments was at a point which our younger officers, accustomed to present-day conditions, can scarcely comprehend. At that time there was in existence the old system of regimental promotion, a system which, whatever its disadvantages in the way of unequal promotion, was the best of all

systems for creating and maintaining the esprit of regiments. The colonel knew his officers, and the officers knew their men.

I come now to that greatest of all handicaps in the successful management of men—the colonial regiment. There must be good reasons for the colonial regiment, or it would never have been inaugurated. At the same time, it may justly be claimed that the whole system was new to our service. The wisest man cannot foretell the results of experiments. That there are grave disadvantages connected with the scheme of colonial regiments is a fact patent to all who have had opportunity to obtain first-hand knowledge. Some time ago, I asked an officer who had been for months on duty with troops to prepare for me a statement of the practical workings of the system. His statement was written with especial reference to the results that followed when several regiments were brought from the United States to replace an equal number serving in the Islands. It sets forth the actual conditions better than anything else I have seen:

“It is important that the rider know his horse; it is of infinitely greater importance that superior and inferior know each other, for without such knowledge, there is lacking that spirit of kindliness, sympathy, and mutual help so essential to the administration of exact justice, the very basis of true discipline. From these conditions there results a lack of confidence, proper coördination becomes impossible; needless friction is engendered, and discipline suffers. . . . These conditions are greatly accentuated in this regiment at the present time.

“The officers knew not the men, and the noncommissioned officers were strangers to both. This regiment so composed is not a homogeneous body, but a conglomeration of several regimental families with differing traditions—a condition that makes for discord rather than harmony. My experience as a summary-court officer under these conditions has been that in respect to other offenses, an *excessive* proportion of the cases tried by me have been for insubordination towards noncommissioned officers, and I am clearly of the opinion (from the nature of the evidence given) that most of such cases would not have arisen had the men and the non-commissioned officers known each other better and exercised towards each other the tolerance and patience they would have shown had they better knowledge of each other, and felt themselves to be (as would have been the case in more permanent organizations) members of one large family.

"A regiment with at least one stable and permanent element can preserve some measure of its traditions, but when it is constantly changing, and changes from colonel to private every two years—it ceases to have an identity; it becomes simply a number. The value of a good name and pride of ancestry are as potent for good in organizations as they are in individuals, and every reasonable effort should be made towards their preservation."

I cannot state the case any stronger than is done in the foregoing. It is difficult for any officer to do his best work in a colonial regiment where he is a stranger to everyone, and everyone is a stranger to him. Let us not lose sight of the fact that it takes something more than a specified number of officers and men to make a real company or a real regiment. There is too much of the feeling that the man assigned to a colonial regiment is serving a two years' sentence. No regiment, as a regiment, can prosper under any such sentiment. Equalization of foreign service is an excellent thing; but it is a high price to pay, if it is bought at cost of a proper esprit.

With the present system of a constantly changing personnel—from colonel to private every two years—our officers on duty with troops are entitled to greatest credit for the loyalty and the high sense of duty they evince in their service under these difficult conditions.

The Army is soon to receive a large increase. Let us hope that increased strength will make possible the re-establishment of permanent units. If at the same time, something can be done to create and maintain a better esprit, a useful work will have been accomplished.

DISCUSSION OF PAPER WORK

BY MAJOR JAY M. SALLADAY, M. C.

1. I have read over Colonel Magill's interesting article on "Paper Work" in the December number of the GAZETTE.

2. The proposition that unnecessary paper work should be eliminated meets with general approval throughout the service; this applies to all units of the service and all branches. It is also desirable to have the greatest number of men possible performing military duties in an organization.

3. However, it must be recognized that the company is the unit of the organization for training purposes, and this applies particularly to our service when one or two companies are often sent on special duty.

4. Company and detachment records must be complete and furnish the desired information at all times; I do not believe it would be a good plan to have company records kept by the battalion, regimental, or brigade headquarters one time and then shifted over to the company another time; this would be confusing and inefficient, causing delay and dissatisfaction.

5. We must acknowledge the fact that a certain number of extra and special duty men are necessary in every organization, for the operation of the unit or the Post; they may be considered as "overhead charges," which exist in every business of any importance.

6. I have seen attempts made to cut down on the number of extra and special duty at Posts; one man would be relieved from this duty, another from that, with the result that a few men were sent back to their companies for "straight duty"; things ran along fairly well for a while, but in a month's time back went the men and the number on special duty was as large as before. In other words, it can't be done.

7. I believe in keeping the list down as low as possible, but have the number necessary for efficiency and proper management; all these men can and should turn out for a certain number of drills and inspections every week, and in this way keep up in their professional duties.

8. I would recommend a quartermaster sergeant be authorized

for each company or other unit; he would have a clerk to assist him, and would be in charge of all property and paper work of the company. The first sergeant would be selected for his military qualifications alone, and would not be responsible for the company paper work or records.

9. The captain would then have responsible and trained men upon whom he could rely for the proper performance of these particular duties; he is required to know and be familiar with all the details of company administration, but he must have competent assistants for these duties; he would be free to devote most of his time to the drills and training, working out problems and studying.

10. There is a reason for all of our paper work, reports, returns, rolls, records, etc.; if you cut out one report, it is not long before a new one to take its place is added. Of course, there is always room for improvements in any scheme of organization, and every one should feel it their duty to make suggestions for changes and improvements.

11. The system of paper work in the Marine Corps is about as efficient as it is possible to have; it is well adapted to our duties. I don't believe any branch of the military or naval service has "anything on us" in this line. Any company commander who finds it burdensome had better make a critical analysis of himself and his methods before condemning the system, which has been founded upon experience and has stood the test of time.

12. Finally, I would say do not change the system, we are doing well; a good man can make out the muster roll in two hours easily. Improvements may be made, but companies must do their own work, not dividing it up with other units; it must make out its own pay rolls as it is the source of all information in regard to the men's accounts.

BY WILLIAM A. ROLFF, Q. M. C., M. C.

Referring to the article in your quarterly issue of December, 1917, by Colonel Louis J. Magill on "Paper Work," I offer the following defence of the muster roll, but with the assurance that expressions at variance with the views of Colonel Magill are given in full appreciation of the sincerity of Colonel Magill's arguments as well as with a full realization of his intellectual qualities. All my disagreements with his views are given with an equally honest con-

viction based on experience received through intimate contact with muster rolls for a period of almost 15 years.

I would not give any man much credit that cannot be convinced along lines other than his own ideas, hence I agree that the muster roll is faulty at present. That there is something wrong about muster rolls I myself was convinced long ago, but I have never been able to realize that it was so "diseased" as to call for its death. A remedy surely can be found to cure its ills, but no one man has had sufficient intimate dealings with the information furnished by the muster roll, information that is of inestimable value at Headquarters in the future as well as in the present, to say that the muster roll is a useless report and can be done away with.

To substitute a report or reports in another form for the present muster roll is remedying the evil temporarily only, if at all, for such report or reports will be added to sooner or later by subsequent orders, regulations, etc., due to new exigencies or ideas, the latter being brought to Headquarters mostly by changes in officers detailed there for duty. The abolishment of the muster roll or a substitution in any form whatever would be a mistake.

At Headquarters I have seen many officers come and go, and few if any but had some new idea or suggestion to offer in connection with the muster roll and what should be omitted or embodied therein. Can you imagine anything but chaos if all these new ideas or suggestions had been indiscriminately put into effect, however sincere were the minds advancing them? I have heard officers discuss the necessity for and the importance of the muster roll. Several have expressed their belief that it was an unnecessary evil, and most all have declared it caused more worry than all the rest of the reports put together, yet not one ventured a "safe cure." The difficulty seems to lie in that the "line" does not understand the purpose of Headquarters in desiring things done a certain way. It is true that even Headquarters errs at times: that is human. Then again, Headquarters seems to fall short in its mission by not acquainting the line with definite reasons for wanting this or that done in this or that manner—there seems to be no co-ordination, no working together.

Progress is the watchword as we advance in our modern days. Progress has kept equal pace in military as well as in commercial or other branches. It is equally as important to keep our military records up to date as it is to keep our military efficiency up to the highest standard possible. The value of the muster roll to the Marine

Corps is just as apparent as the value of the engines to a steamship. If the engines of a ship do not work properly does the Captain say, "Let us throw the things overboard and sail without them"? No, he gives the orders to have the cause or causes of poor work removed. The object lesson here needs no further elaboration. What would be of record, say, 50 years from now, to show our deeds and services if we kept poor or no records?

The present records of the service of our corps covering periods of, say, the War of 1812, the Rebellion of 1861-1865, and even the late Spanish-American War, appear pitiable to any one who to-day endeavors to gather sufficient data from which to write up a military history of any nature, and it cannot be done in most cases without resorting to approximating or injecting assumed data. Muster rolls are checked and corrected every month, thereby being up to date and as accurate as conditions permit. Innumerable calls from the President down through bureaus of other department to relatives and friends of officers and enlisted men require the prompt receipt of nearly all the information furnished by the muster roll, as any person's military history can now be easily traced and verified. Individual service-records are not reliable because they cannot be verified until their receipt at Headquarters when an enlisted man exits the service, and in cases of officers who have no service-record to follow them as an enlisted man, where will the information required come from? The present system of requiring each unit (detachment, company, etc.) to render distinct and separate rolls is one that should not be interfered with. It had long been the desire of many officers to have this same system adopted in order to distribute the work necessary in the preparation.

The first sergeant is and should be a purely military or fighting unit of the company as well as the company officers' right-hand man in military matters of the company. Modern warfare requires more of his time and attention for military matters than formerly because of increased technique in the fighting game. To require the first sergeant to do all the clerical work (assuming he does it all) of a company in addition to his military duties, such as the supervision and instruction of the company, is placing too heavy a burden on the shoulders of one man. It is a grave mistake to select a first sergeant because of his clerical ability rather than for his military adaptability and qualifications, and this mistake should be avoided, but not at the expense of the muster roll or any other report that is necessary.

If the military efficiency of company officers is also impaired by the attention required at present to paper work and records, the substitution of another form or forms to furnish the same information now obtained from the muster rolls will not solve the problem.

If, as it now appears, the fault with the muster roll lies in the fact that the first sergeant is too much occupied with military duties to permit proper supervision and rendition of reports and paper work, I offer the following solution: Relieve the first sergeant of all paper work and detail a competent man, specially fitted and trained for paper work, giving him appropriate rank, for the purely clerical work of the company. Each clerk can attend to all reports and paper work in addition to the regular official correspondence, the larger organizations of course receiving the detail of sufficient men to properly carry on all the work. This would also take in the preparation of pay rolls, and to overcome the flooding of work on the end of the month, the pay rolls could be submitted on the 15th of the month, regulations, etc., governing same of course to be changed accordingly.

This makes it appear that the only real difficulty with the muster roll is the mechanical process required in the preparation. There are several minor details at present embodied in the preparation of the rolls that can be done away with, and this can be brought about by the process of gradual elimination, by setting a standard for offenses, events, etc., that should be entered or made a matter of record. The facts that a man had soiled or improperly arranged equipment or clothing at the commanding officer's inspection, and offenses of similar minor importance, are too insignificant to warrant recording further than the usual first sergeant's or sergeant major's office record. Under this same class should be included small arms qualifications, delivery of insignia of all kinds, delivery of non-commissioned officers' warrants, letters of commendation, etc., all of which are invariably recorded by printed orders, official correspondence or receipt cards. A movement along these lines will eliminate much paper and office work and reduce the liability of errors. The assertion that all the paper work now required by the Adjutant and Inspector's Department for companies, battalions, regiments and brigades of a division could be satisfactorily done in the office of the Adjutant General of the Division with five competent clerks, thereby relieving a great many men for military duties, appears too radical to be accepted as a fact. When battalion, regi-

mental and brigade headquarters cease to require information that is absolutely needed, then perhaps may it be true, but very doubtful.

It is not by any means a fact that the paper work required in the preparation of reports, etc., by the Adjutant and Inspector's Department consumes most of the time now expended on paper work of companies, battalions or regiments. From a careful inquiry into the matter, it has developed that the muster roll alone of all the reports required by the Adjutant and Inspector's Department requires not more than 5 hours' time a month (this is a very liberal time allowance) in the collection of data and preparation. The fact that companies and other organizations keep their records on "muster roll cards," does not necessarily throw the blame for the labor involved in the keeping of same on to the Adjutant and Inspector's Department. Company records are a necessity, and the muster roll card is merely a convenient form for the keeping of individual records.

I was once told that the reason for my defending the muster roll was because I was afraid of losing my job. This is not only a wrong impression, but such a reason never existed. Few men in the service to-day have had the intimate relations with muster rolls as I have had, and now that I am no longer directly connected with that kind of work, I say just as honestly and frankly, the muster roll is a necessary evil and should not be abolished. Revise it, change its form, do anything with it so as to "camouflage" the muster roll as it is to-day, the information it now furnishes will be required and furnished to Headquarters just the same and just as promptly. I venture the opinion that if half of all the present apparently superfluous and unnecessary forms and reports were abolished, in less than one year they would in all probability be resurrected in their original or some other form, as necessary evils.

I assure you that nothing in the above is intended as a criticism or personal reflection on anyone, and hope that you may find this, my limited effort, worthy of recognition.

COMPANY ADMINISTRATIVE WORK*

CAPTAIN BLOXHAM WARD, INFANTRY, U. S. ARMY

UNFORTUNATELY none of our sources of information concerning the war in which we are engaged deal with the administrative work that regulations and customs require of company commanders. What will we do with the field desk and its precious (?) cargo of records? Will it be taken along to the front-line trenches or will it be kept with the reserves? If the latter, how can the organization commander submit those numerous returns and reports required in Washington and elsewhere? If the former, it will make life most interesting for the company clerk. Imagine him charging madly across a shell-swept section of No Man's Land with his field desk under one arm and his typewriter under the other. If he negotiate a safe passage without having his records torpedoed, he will doubtless set up his office in a shell hole where he will train his typewriter on a muster roll or other record and open a destructive, though not necessarily an accurate, fire. Of course, if the attack is some time between the 5th and 25th of the month, he will not have to be in such a hurry, but if it comes between the latter date and the end of the month, he will have to hustle.

Our system of paper work is a peace system. Of course, papers are necessary. No business can be conducted without them, and the conduct of an army is business on the largest scale. Admitting this, officers of the line cannot but feel that the paper work required is prescribed by men who are concerned with administration rather than preparation for war. In paper work, as in equipment, either everything which may be called for can be required or only what cannot be gotten along without. The second is the safest solution, for it means mobility, and without mobility a collection of armed men may be a comfortable and well-governed community—it is not an army.

If our Army existed for no more war-like purpose than cutting the grass or providing employment for the mistake hounds in the various departments in Washington, we could struggle along until the crack of doom without further changes in our system of paper

* From the Infantry Journal, March, 1918.

work. However, we are expected to go over to France, where it is quite likely that we will spend weeks in damp trenches where the typewriter will rust and the water rats will eat up the records. What is to be done about it?

The remedy suggested for this condition is to keep the live records at Division Headquarters and store the dead records in Washington in the custody of the Adjutant General's Department. There is no reason why a company should be burdened with the records of men who have long since been separated from it, nor should it be burdened with the live records of its members if it can be avoided. Mobility is one of the most desirable qualifications of a fighting unit, and it certainly is a fact that the lighter they are loaded, the faster they can move. Since the company is a fighting unit, and by all accounts the most important one, nothing should be left undone to raise its efficiency to the highest point. If total relief from all paper work will do this, it should by all means be done.

When a company takes the field, it must store all its dead records and some of its live ones, and if it is on a duty that requires great mobility, it must store all of them. In other words, a system that functions perfectly in a certain situation fails completely in another. One of the fundamental defects of our military system is that it is organized for peace rather than for war. Our normal life is garrison life, while camp life proves to be so unusual and upsetting as to require weeks of previous preparation and the inauguration of a complete new system with voluminous orders and instructions. In this connection it would be most interesting to know how the records were kept by the company organizations that composed the Punitive Expedition into Mexico.

In suggesting the division as the proper repository of the company records, I have been influenced by the following salient facts:

1. The burden of administrative responsibility should be removed completely from the shoulders of the company commanders.
2. Division Headquarters is close enough to the firing line to be accessible to all the companies, yet it is far enough to the rear to be insured against sudden shifts of position.
3. The clerical force at Division Headquarters is capable of being better organized for efficient work than that of the company, and will have better and more permanent facilities for working.
4. The records will be much safer and much more accurately kept

at Division Headquarters than at Regimental Headquarters or in the company. This is especially true of companies of the National Army, whose commanding officers have had little or no experience in keeping records.

It would be an easy matter to organize a clerical force and install sufficient facilities at each Division Headquarters to take care of the paper work of all the units in that division. Each unit should have its own field desk in which its records are kept posted up to date and filed. If a company is transferred from one division to another or to a separate brigade, its records could be packed at a moment's notice and transferred to the new headquarters, and if a company is placed on some duty not under any division, such as guard duty at a base, its records could be turned back to the company while on such duty. This gives a system that will be workable under any circumstances.

The problem, then, is to place accurate data in the hands of the division adjutant, and to do this promptly enough to enable him to keep the records up to date. In order to do this, it is suggested that a modified form of morning report, called a daily strength report, be used. This should be a blank form similar in general make-up to the commissary sales slip pad, and of a size suitable for carrying in the shirt or coat pocket. It should be ruled somewhat like a page of the present morning report with ample space for remarks. Each morning, as soon as the company commander had determined by roll calls and inspections just how many effectives he has for duty, he would make out his daily strength report in triplicate; the original would be sent by messenger to Division Headquarters, where the data that it contained would be transferred to the proper forms and the report filed. The first copy would be turned over to the battalion commander, who, after determining the effective strength of his unit, would forward the reports of his battalion to the regimental commander, who would utilize them for a similar purpose. After having served this purpose, these records would be of no further use and could be destroyed. The tissue copy would be retained by the company commander and used the following day in making out the next report.

The method outlined above affords a simple and easy means of transmitting the necessary data from companies to Division Headquarters. In cases where, for any reason, a messenger cannot reach

the company, this data can be sent over the telephone, by wireless, or even wigwagged. This strength report can be made to carry all the data usually found in such regimental orders as change the status of officers and enlisted men. For example, the colonel of a regiment desires to transfer John Doe and Richard Roe from Company A to Company B. Instead of getting out a written order, he issues a verbal order to each company commander directing the transfer. When the next strength report is submitted, each company commander shows, in the space for remarks, the notation that the transfer was made by verbal order of the regimental commander. Upon receipt of this information at Division Headquarters, the necessary shift in the records would be made.

This method, as outlined, would relieve the company of the work of keeping the service record, making out the muster and pay rolls and monthly returns, and keeping the correspondence files. The only other records would be the file of orders, the company fund book, the sick book and property accountability records. Of these, the order file may be safely transferred with the other records and kept there, as 99 per cent. of the orders that pertain to companies have to do with keeping records or in changing the status of some one in the company, while the other 1 per cent. contains training instructions.

The commander can carry the 1 per cent. in his pocket. As for the company fund book, its entries can always be put off to a more convenient season. It is not believed that an inspector would go into front-line trenches and interrupt a battle to inspect the company fund. Moreover, there should be no company fund. It places a burden of responsibility upon the company commander that he should not have. The ration is quite ample now to give men all they need in the way of food, and their pay is sufficient to provide for all their other necessities. The other records, however, cannot be so readily disposed of.

The sick book, in some form, must be kept both for the information of the company commander and the surgeon. It is believed that a blank form similar to the daily strength report would be most satisfactory. The surgeon would make it in triplicate, forwarding the original to Division Headquarters, the first carbon to the company commander, and keeping the tissue copy for his own record. The following form is suggested:

SICK REPORT FROM.....
(Name of dressing station or hospital)

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FROM (Name of surgeon taking sick call.)

TO: C. O., Co. "A," 101st Infantry.

SUBJECT: Medical treatment.

You are informed that the following named officers and enlisted men of your company received medical treatment from the above medical unit this day.

The disposition of each case is indicated below.

Name	Rank	Advance hospital	Sick in quarters	Base hospital	Duty
.....
.....
.....
.....
.....
.....
.....
.....
.....

This can be filled in by the N. C. O. who goes with the sick men, or any one else available.

PROPER ACCOUNTABILITY

We come now to a phase of the administrative work of a company that has probably done more than anything else to reduce us to a state of incoherent profanity and cause our belief in the intelligence of man to waver. Quite recently some attempt has been made to alleviate this condition by providing for a regimental supply officer. It is not believed, however, that this will give much relief beyond providing a tangible personality upon whom we can vent our profanity when we are caught short by a bull movement of property caused by the imminent approach of the inspector. The inflexible rule that all shortages, not satisfactorily explained, must be paid for forthwith, has invested this part of an officer's duties with an importance out of all proportion to their real value. The staff departments that issue property have imposed most stringent, and, in

most cases, complex rules for accounting for same. Every precaution is taken to insure that the accountable officer makes away with nothing belonging to the Government. Nothing is trusted to his sense of duty or discretion. He is apparently given no credit for having a desire to safeguard the interests of the Government. As a result of this valuation placed upon our sense of duty, we actually acquire somewhat the point of view that we are credited with. As a general thing we do not worry about the property interests of the Government unless we are in danger of suffering personal loss thereby. As a result of this state of mind, the pursuit of property has become our most absorbing occupation. We measure the efficiency of our quartermaster sergeants by their ability to rustle a surplus of everything we have on paper. On more than one occasion, in taking command of a company, I have had the retiring company commander say to me, "Our quartermaster sergeant is a peach; he is ahead on nearly everything." I recall one such sergeant who had a complete surplus ordnance outfit for each man. How did he get it? I do not know. The fact that he had it and that his company commander rejoiced in that fact shows our state of mind. Another quartermaster sergeant was suspected of keeping a branding iron hot all the time with which to brand any property that happened to fall into his clutches.

Suppose that, instead of having all this "fol-de-rol" of returns, memorandum receipts, unit accountability reports, reports of survey, etc., each soldier should be required to sign a receipt for the property necessary to equip him. Suppose these receipts were filed with the company papers at Division Headquarters. This would enable the division adjutant to keep an accurate property account of the men in his division and to make the necessary charges on the pay roll for articles lost, destroyed, or damaged through neglect. Whenever a company commander discovered that an article of equipment had been lost, destroyed, or damaged beyond further use, he would note it on his strength report, adding the word "avoidable" or "unavoidable," as the case might be. If the former, the cost of the article lost, destroyed, or damaged would be charged against the soldier on the next pay roll; if the latter, a true extract copy of the strength report would be furnished the division supply officer as a voucher for dropping the same from his return. In either case the division supply officer should take steps to issue another article immediately without waiting for a request. There is certain prop-

erty not issued to any individual, and for which the company commander must sign. Examples of this are kitchen utensils and the guns and caissons of a battery. If any of these articles are lost, the battalion commander should make an investigation and note the result on the strength report of the company commander over his own signature. In case the company commander decides to appeal, he should note that fact on the same report, whereupon the division adjutant would delay final action until an opportunity could be afforded for a written statement in appeal.

Such an arrangement would enable each company commander to report daily regarding his equipment, and to take the necessary steps to have any lost or damaged articles replaced. It protects the Government, because there is provision for charging the individual the cost of articles lost through carelessness. True, it leaves it to the company commander to say whether or not the loss or damage was unavoidable, but there should be no objection to this, as the officer is disinterested as long as he is not accountable or responsible. I believe that the company commanders can be trusted to determine the facts in any case of loss or damage, and that, if they are shown that confidence is felt in them, they will make every effort to safeguard government property, and will do, from a sense of duty, what the Government has for years been trying to make them do by surrounding them with safeguards and restricting them with checks and balances.

A suggested copy of the daily strength report, with a sample of the data to be shown thereon, is given herewith.

It will be noted from an examination of this blank that a commander can furnish a daily history of his company, both as to personnel and matériel, and can place in the hands of the division adjutant accurate data duly authenticated, from which a most complete record can be kept. There would, doubtless, be particular occasions when the company commander would have to do special work of a clerical nature, such as making out insurance or allotment applications, but even that could very readily be attended to by a clerk sent to each company. It is certain that it would relieve the company commander of his greatest burden, and enable him to play more completely the rôle that all the rules of tactics prescribed for him—the commander of a purely fighting unit.

STRENGTH REPORT

COMPANY: A

REGIMENT: 101st Infantry.

At.....

.....191

Present									Horses, driving	Horses, riding		
	Officers	Non. Com. Officers	Cooks, etc.	Privates first class	Privates	Prisoners	Sick	Absent	Serviceable	Unserviceable	Serviceable	Unserviceable
Members—Co.....												
Attached—Duty.....												
Attached—Rations.....												
Total.....												

No. Serviceable Rifles..... Ammunition Rds
 No. Hand Grenades..... Rifle

REMARKS: Pvts. John Doe and Richard Roe transferred from Co. "A" to Co. "B," O. R. C., Pvt. James Anderson lost one rifle, Springfield, avoidable. David H. Wilson promoted from Cpl. to Sgt., per O. R. C., per Pvt. John F. Coulson reduced same date. Pvts. Joseph S. Bain and Paul C. Barker from duty to advance hospital.

.....
 Captain 101st Infantry,
 Commanding Company.

THE CHANGES IN ARMY PAPER WORK*

IN accordance with the prescribed changes in Army paper work, Special Regulations No. 58 A, War Department, April 30, 1918, have been issued from the office of the Adjutant General, by order of Major General Peyton C. March, Acting Chief of Staff. They prescribe instructions for the preparation of pay cards and supplementary instructions for the preparation of pay rolls, which are published to the Army for the information and guidance of all concerned. So much of Special Regulation No. 58 as is in conflict with these new instructions is rescinded. The instructions make up a pamphlet of over twenty pages, which includes a careful index. The personnel officers who, beginning with May 1, 1918, keep account of pay of enlisted men will find in the regulations full instructions for the preparation of pay cards and pay rolls, partial payments where called for, payments to soldiers separated from service records, etc. The new form of pay card is described, on which pay accounts for each enlisted man will be opened, as soon as the cards are received. The cards will be kept in loose-leaf binders such as are now used for delinquency record cards, which will be filed with them. The procedure for keeping record of pay of enlisted men is described in detail and the proper indorsement on pay cards in case of transfer or detachment. It is prescribed that where a soldier is transferred or detached, if he is to travel alone or if no officer or noncommissioned officer is in command of his party, his pay card enclosed in a sealed envelope will be turned over to the soldier to be delivered to his new commander and by him transmitted to the personnel officer. Provision is also made for the disposition of a pay card in case of discharge and for the procedure in case of loss of a card. Preparation of pay rolls is described in detail, also instructions as to allotments and insurance premiums, etc.

G.O. 42, War Department, April 29, 1918, which appears on page 1416 of this issue, provides for the appointment of a personnel officer for each regiment, separate or detached battalions, or similar unit and for the headquarters of each army, army corps and territorial department and for each post, camp or other station, and

* From Army and Navy Journal, May 11, 1918.

provides for the preparation of pay rolls by the personnel officer beginning with May 1, 1918. The muster of troops for pay was discontinued April 30, and the bi-monthly muster of troops and the preparation of muster rolls will be discontinued after June 30, 1918. Beginning with July 1, personnel officers will forward directly to the Adjutant General reports of changes in duties, etc., of officers and men, on forms now in course of publication.

NEW SYSTEM FOR MORNING REPORTS

The Adjutant General's Office is preparing plans for material changes in the form and requirements of morning reports required from company commanders. It is understood that the present complicated form will be done away with, and a large amount of the paper work required under the present regulation will be eliminated. Under the new forms the headquarters reports will also be materially simplified.

SCHOOL FOR PERSONNEL OFFICERS

A school for personnel officers is being held at Camp Bowie, Texas, and one hundred officers are in attendance. The school will last for one week. Next week a similar school will be started at Camp Gordon, Ga., and other schools will be held at other stations within the coming three or four weeks, for the training of officers who have been assigned to duty as personnel officers.

CAMP SANITATION IN TRENCH WARFARE *

BY A MILITARY OBSERVER

IN the first line trenches each battalion section has one or more regimental aid posts i/c of R. M. O.

1. *Infectious Diseases*.—All cases showing fever are immediately evacuated to rest station, where they can be observed and isolated, and from there sent to casualty clearing stations, from where they are evacuated to the base. Contacts to mumps and measles, trench fever, and hemorrhagic jaundice are not interfered with. Those from diphtheria and cerebrospinal meningitis and scarlet fever are sent back in quarantine. Those from scarlet fever are kept for ten days, those from diphtheria and cerebrospinal meningitis until bacteriologically clear on two consecutive negatives at least twenty-four hours apart.

The underlying principle is to get all infectious cases out at the earliest possible moment from the well.

2. *Water Supply*.—(a) In petrol tins carried up with rations from 200-gallon twin reservoirs, at nearest point possible to lines. Twin to facilitate alternate chlorination. (b) From farm wells in neighborhood, always chlorinated. (c) From wells approximately 500 yards back in bays off communication trenches. (d) Water bottles brought in filled from chlorinated designated sources as men go into trenches. (e) In strong points a store of chlorinated water is always kept in rum jars. In tin cans objectionable tastes develop. (f) In one place water was carried from highest point up stream to a 3 by 4 by 2 feet deep box filled with clean sand—run into a twin reservoir where it was chlorinated. (g) In another area pipes were led into trenches from supplies in the back area.

3. *Food Supply*.—(a) Each man is supplied with three days' "iron rations," to be used in emergency only. (b) Otherwise carried up every night. The fresh meat is cooked in the reserve area and brought up in labelled sandbags to be warmed up for each platoon. Coke is supplied for warming up in trenches, also to make tea. (c) In the winter hot soup or cocoa or tea is brought up in 2-gallon insulated petrol-tins for use after 1 A.M.; 10 ounces for each man.

* From The Military Surgeon, December, 1917.

4. *Sullage Water* and ablution water collected in tins to be carried back and emptied on soil or in holes where it will not be a nuisance.

5. *Refuse*.—Is collected in sandbags hung up at intervals in trenches, to be carried back and buried in the night—usually within 200 feet of the trenches. In some cases it has been carried back by the ration parties to be burned in the "rest area."

6. *Excreta*.—Collected in petrol drums flyproofed with 1 per cent. cresol solution; the fæces pails in addition are provided with improvised automatically falling covers; "chloride of lime" is freely scattered around about. At night the fæces and urine are buried inside of 200 feet of the trenches generally.

7. *Bodies*.—Generally are not buried locally but brought back to cemeteries usually from 1000 yards on from the trenches. They are covered with 3 feet of earth at least when possible.

8. *Vermin*.—The men are supplied with a powder to dust into clothes and an ointment to rub into seams of underclothes and breeches; the active principle there is crude petroleum.

9. *Rats*.—These are a great nuisance and numerous traps, dogs, cats, and ferrets are used for their destruction and the men kill many of them. We have not used poisons or virus; we are afraid of the virus (too closely related to enteric group), and the men are too closely associated with the rats. In case plague should come about we would have to; perhaps more rigid destruction of rats would protect us against trench fever, so called.

10. *Trench Feet*.—(a) Drain trenches as much as possible. (b) Use "waders," kept in trench stores, thigh high. Puttees are removed on coming into trenches always. Each man brings with him 2 pairs dry socks; each night 2 additional pairs are brought up with rations in water-tight bags. Men wash and dry feet at least once every 24 hours, using afterward a talcum-camphor powder; care is taken to have them move about. Each platoon officer is responsible for the carrying out of these precautions.

11. *Inspection* is done each day by the regimental medical officer. The responsibility of keeping the trenches clean and sanitary rests on the commanding officer and his staff. The medical officer has advisory capacity only.

12. *Personnel*.—Each company supplies a sanitary squad and is aided by a sanitary fatigue when necessary.

Reserve Area.—Usually about 1000 yards behind front line. (1)

Vermin, as in trenches. (2) Food: Can usually be cooked without hindrance. (3) Water Supply: Water carts brought up here, chlorinated always from designated sources. Local wells not used at all if can be avoided. (4) Milk: No local milk is used; either condensed or milk powder used. (5) Excreta: Flyproofed always; tin biscuit cresol solution in cans, buried. In dry alluvial soils, pits are dug and boxes enclosed in wooden boxes with automatically falling covers; closed seats placed over them, the area fenced off. Kept dark, these pits do very well 1½ feet wide at top, 2 feet wide at bottom, 4 by 5 feet deep, but thoroughly covered. When unit goes out these are thoroughly filled in and marked. (6) Refuse: Still has to be buried. (7) Sullage water: Radiating shallow trenches filled with old tin cans and covered with earth are used. A tin box filled with grass or straw with chloride of lime scattered through it deals with this very well. The trenches are 1 foot wide, 2 feet deep and long, according to the absorbing quality of the soil.

Cemeteries.—Usually in this area very well kept.

Rest Area.—Usually 4 or 5 miles back from the front lines. Huts, billets or tents. There are three field ambulances per division. One of these is in rest generally, one is conducting a "rest camp" for the care of non-infectious temporarily sick and has one section for the reception, sorting and distribution to casualty clearing stations of infectious cases. Scabies cases are usually treated at the rest camp. The other field ambulance has charge of the advance dressing stations and the main dressing station of the division.

Convalescent Camp.—In charge of a combatant officer: looks after the chronic sick room visitant and light duty men. From this, fatigues are supplied for all kinds of odd jobs.

1. *Chlorination and Distribution of Water. In the Camps.*—Each 500 men has a water cart assigned them with a constant water detail in charge, who always carries his own supply of calcium hypochloride in quarter-pound tins with him on his cart and always does his own chlorinating. There is a standard measure in each tin. A tin is used for four days only, then discarded. Tins with wet or colored contents are immediately replaced. The supply of these tins is got with the rations of the unit. It is the "water detail's" duty to keep his cart in good repair and clean. There is a driver to look after the horses. Water is to be taken from approved and assigned supplies only, and always to be chlorinated—no chances are taken. By frequent tests, using the iodine tester, the number of

measures to be used to the standard cart (100 gallons) with each water is prominently indicated on signboards at each source, where a special detail usually from the Sanitary Section is placed to see that the "water detail" men do the chlorinating. A record of each cart, the hour of taking, the unit, whether supplies are with them, whether the water tank is clean and whether the "water detail" accompanies the cart. It is the "water detail" man who puts the chlorine into the cart. In many of the areas there are well-organized piped, hydranted or water-tanked systems. The standard canton flannel filters and alum chlorifiers are practically never used. They soon deteriorate and get out of repair and generally on the rough roads tear the water-cart tanks all to pieces. Some of the waters require one measure, some as high as four.

2. *Reduction of Fly and Insect Pests.*—(a) Mosquitoes. All ponds and stagnant waters, whether used for washing water or horse-drinking water, are in the mosquito season oiled once a week, using about 4 ounces of coal oil for each 200 square feet of surface. (b) Flies. All refuse is burned daily. Horse manure also and human feces either burned or buried. Food stores are screened as much as possible. Some have tried the biothermic method of disposing of horse manure. It is not a success in camps; no one will take the necessary trouble required. Strong solutions of borax or cresol frequently sprinkled on manure have been tried but have not been brilliantly successful. With all refuse and horse manure burned the flies nearly disappear.

3. *Campaign against Rats.*—No serious campaign against rats has been undertaken. They are a great nuisance, but they are fine scavengers. The men kill them on every occasion. The cats and dogs and ferrets of the trenches get rid of a good many of them. Traps are used, but are not very successful. Poison has been proposed, but we have enough self-inflicted wounds already, and there is a general objection therefore to use poison. Rat-infecting bacteria have been advised, but these organisms are so closely related to the colon group of organisms that we do not use them; of course, if plague were to come on the scene, steps would have to be taken to meet the rat pest, but so far nothing serious has been done.

4. *Disposal of Kitchen and Ablution Water.*—This is most satisfactorily done by using the can-filled radiating trenches as with the disposal of urine, but, in addition, to place alternate layers of straw or grass and a liberal allowance of calcium hypochloride in a

straining tin at the hub of the trenches. When soiled, the straw or grass is burned in the incinerator.

Destruction of Body Vermin.—(a) Bed bugs are almost unknown among the troops. (b) Head lice cases are rarely encountered. As a preventive the hair is kept clipped; as a remedy vaseline or coal oil is used, being careful to prevent blistering. (c) Body louse infection is frequent. For their destruction: (1) A powder for dusting into the clothes and an ointment for application to the seams of underclothes and trousers is supplied. The active principle of both these preparations is crude petroleum. It is fairly effective, but there is some difficulty in getting the men to intelligently and regularly use it. (2) Baths, usually shower baths, are given as frequently as possible, usually every three weeks, after which the men are given a clean set of underclothes and shirt, but since from 25 to 40 per cent. of the lice on each individual are present in the crotch seams of the trousers, respreading soon takes place. To meet this contingency in the smaller bath places, whilst the men are taking their baths, the trouser seams are ironed with hot flatirons. This helps out very much. (3) One large central bath is usually provided for each division, where from 1000 to 1500 men can be bathed each day. Some of these are provided with a Fodden disinfector—two large pressure steam sterilizers on a motor lorry, the steam being supplied by the boiler of the lorry. A temperature of 100° to 110° C. is attained in these, but when men's clothing has to be put through them at a rate of 100 to 150 sets per hour, it is too slow and only the most seriously infested sets are done. The Belgians at their two main bath houses put the men's clothes, each in his own bag, through the same process, but use a much larger disinfector supplied from a large stationary steam boiler with convenient mechanical devices for quick handling, and get the best of results. For our troops who are continuously on the move, the Belgian apparatus is too cumbersome and the boilers too heavy to be portable. (4) To rid men completely of their lice it is necessary that all their clothing be done at one time, including even their greatcoat and, where possible, their individual blankets, and this should all be done when they are taking their bath, in a matter of from 25 to 30 minutes. Many of the units have put up disinfectors after the following plan, and with almost complete success, even under the difficulties of active service. Two contiguous rooms, double walled, sawdust filled, 6 feet wide, 10 feet long and 6½ feet high, with a door at one

end and a 1-foot wide 3-foot long window at the other end, with hooks from the ceiling on which to hang a numbered wooden holder for the clothes of each man. Around the walls are placed five rows of radiating 2-inch steam pipes, kept continuously hot by circulating steam supplied usually by a standard threshing machine boiler. In the centre of the floor, with a protecting shield over it, is placed a free steam outlet, all regulated from the outside. The clothes, turned inside out, are hung in this chamber as the men go into the bath, free steam is admitted from the floor outlet, the door and window slightly open until the air is pretty well driven out (one minute), then are closed and the steam flow continued for five minutes, and shut off; the whole then allowed to stand for 10 minutes more, then the window and door are opened wide and the clothes taken out as soon as can be and shaken. They are dry and deloused and the eggs destroyed. The clothes are then handed to the men and can be immediately put on. Having two chambers, the work can go on alternately in one, then the other, and the whole process not take more than 25 minutes. The temperature attained is from 85° to 95° C., if the boiler is capable of keeping up in itself a pressure of 40 pounds per square inch through the process, and it usually can. (5) It is being seriously considered to fit up box cars in this way to be supplied with steam from a locomotive boiler for troops on the move. In Salonika this has been done successfully. (The men after their bath are issued clean underclothes, the old ones being left behind to be washed for future use.) (6) In some areas Clayton sulphur-gas disinfectors have been set up. With 5 per cent. of gas in the chamber in which are hung the clothes, the lice and eggs are killed in one hour, but often not more than 3 per cent. of the gas can be gotten into the room, 7 or 8 hours then being required to kill the eggs and the lice. It is rather slow for active service purposes. (7) In one casualty clearing station they sprinkled the clothes with gasoline, rolled them up tightly, then placed them in a small cellar room practically air tight, and left them so for 24 hours, when generally the lice and their eggs were dead. But this takes time and uses up very precious gasoline, and is not free from fire danger.

Disinfection of Clothing and Bedding.—(1) By steam in a Thresh disinfecter, by the same process in the magnified Thresh or Fodden disinfecter, or in the flowing steam room described as above. (2) By sulphur gas, either from liquefied sulphurous acid containers or

from that supplied by the Clayton disinfecter. (3) A very effective method of dealing with body lice is by the hot air process. All that is needed is a thick wall tempered say 10 by 10 by 7 feet high. A dugout would do, or any small room, provided it is insulated; clothing could be hung in this, and into the room a brazier placed and the door closed. The small window will allow for observing the effect of the heat on bits of paper hung here and there; if the paper browns, then air should be let in, but as a rule it does not. A temperature of 85° C. is easily got and with this temperature lice and their eggs are destroyed quite certainly in 15 minutes.

Construction of Bath Houses and Laundries.—Usually it is one bath-house and one laundry on the same ground for each division, as near the centre of the area as possible. For outlying concentrations additional small bath-houses are put up. Sometimes these conveniences are set up in buildings already existent (breweries), in other cases are new constructions. (a) Bath House. One put up last summer in ——— salient combined the wants and the experiences of a couple of years. A small stream was dammed for a plentiful supply of water, the water was pumped by a small steam pump to an overhead tank which could serve for the laundry as well, also for fire protection. A water heater, on the plan of a Daisy water heater, was provided to supply hot water to a second tank to meet cold water, and from there be distributed to a set of rose-sprays piped overhead in a room floored with corrugated iron, duck-boards on top for the men to stand on; no cubicles provided. All the men bathe in one room, 40 at a time. A man from the platform regulated the tempered water and the supply to avoid wastage; the drainage went to a reception tank where it could be treated before entry into the stream with the laundry water further down. In the ante-room, provided with wall and centre benches, the men undressed, their valuables were looked after by a noncommissioned officer, their soiled underclothes being collected into baskets to be washed and their jackets, trousers or breeches and greatcoats and blankets, if they have brought these last with them, were taken by attendants, a number being given to each man, and they were put through the steam disinfecter whilst the men went on to the shower bath. After their bath, by another passage they went into a dressing room where they dried up and were given clean underclothes, shirt and socks, and then got each their disinfected jackets, trousers, etc. Reinfection with vermin was thus avoided—the whole process took from 25 to 30

minutes. (b) *Laundries.* In general the arrangements were as follows: Hot water in an overhead tank heated by exhaust steam or by a Daisy heater piped over the tubs; also cold water was piped there. Women hired locally washed the clothes in the ordinary tubs of the country, using washboards and soft soap, usually made up from bar soap (15 bars yellow soap, 30 pounds washing soda, 9 pails water, boiled together). The clothes had been previously disinfected either in a Fodden or in the chamber disinfector used for delousing. The floors were of corrugated iron leading to a central drain, thence to the reception tank. The women stood on duckboards. The clothes were then wrung either by hand or put through a roller wringer (power driven) and hung outside to dry in suitable weather; otherwise they were dried in drying huts heated by stoves down the centre, the clothes hung closely on wires. The heated saturated air was periodically extracted by fans and, when properly handled, the clothes dried in 8 hours. After this the clothes were sorted and folded, not ironed, those needing mending being sent to the mending room. In winter 15,000 pairs of socks were washed and dried daily.

From the fact that the stream water had to be used again down below, the dirty water had to be purified. The following method gave satisfaction. Twin tanks of 6000 gallons capacity each were provided. When 3000 gallons of fresh laundry and bath water had reached this, 1 pound of hypochlorite of lime was added with thorough mixing to each 25 gallons of the stuff and then left standing for at least 6 hours, and whilst the twin tank was filling a thick, light scum of calcium soap enmeshing much fluff and other debris rose to the surface. This was skimmed off, mixed with sawdust, and burned in an incinerator. The clean fluid left was run into another tank to be used over again and again when water was scarce, or after running up through a sand screen, it was discharged into the stream below. It was expensive, but it gave satisfaction; other methods and other chemicals might have done better, but they could not be procured. Hypochlorite of lime is supplied to us freely. The buildings for bath and laundry purposes are generally built of rough, cheap lumber and covered with tar paper and roofed in with corrugated iron.

Additional Rest Areas.—When a division has been in action several months in any one section and whose corps is not to be moved from there, it has been found useful to get it at a point further

back out of gun-fire and out of the noise of the front where the men could do light training and rest.

The sanitation of any area is the duty of the O. C. in that area—his medical officer is his sanitary adviser. In addition to this we have a Sanitary Section composed of 27 men and a captain in charge—the business of this section is to coördinate the sanitation of the area and to inspect it. It is not their duty to do the fatigue work, they are there to instruct and to inspect—the O. C. of the Sanitary Section reports to the A. D. M. S. of the Division, and through him any recommendations reach the units concerned.

Our corps has, besides this, a sanitary adviser coördinating the work of the Sanitary Sections of the divisions of the corps. The army in which a corps is situated has a D.A.D.M.S. in sanitation, whose duty it is to supervise the sanitation of the corps and the divisions in the area. Daily reports of the infectious diseases arising in each corps area are sent to the D.M.S. of the army in which they are. In this way knowledge is had of incidence of infectious diseases in the whole area daily; the D.A.D.M.S. sanitation goes then wherever there is indication of trouble. There is a mobile laboratory in each corps area to look after any analysis and bacteriological examinations when required in that area. Civil authorities reciprocate with the local military authorities in reporting infectious diseases amongst the civil population, and measures are taken accordingly in case of major infectious diseases. The patients are removed from the area and the homes from which they came put out of bounds for troops. The civil authorities look after the disinfection, etc. The military and civil sanitary authorities also reciprocate in the control of the estaminets; in many of the areas it is required of the proprietors of these places that all drinking utensils be properly sterilized with boiling water after use by each customer. If we adopted the French method of carrying (each soldier his own cup), this difficult task—the controlling of spreading disease by drinking cups—would be very much reduced. The French soldier carries his cup with him always and, when he drinks wines or beer, drinks from his own cup.

THE ROYAL MARINE BRIGADE AT ANTWERP *

COLONEL C. FIELD

SEPTEMBER, 1914, was nearing its end. The Allied Armies, checked in their advance after the victory of the Marne by the formidable and long-prepared German defences at the River Aisne, were gradually extending their left in a northerly direction with the object of outflanking the right of the German invaders.

To frustrate this move the Huns, on their part, were prolonging their right in a similar manner, and at this time it was touching Douai. The French left had arrived at Arras, the British Expeditionary Force—"the Old Contemptibles" still facing the German positions on the Chemin des Dames.

In the meanwhile another German Army, under General von Boehm, had advanced rapidly through Belgium, and was moving south from Ghent with the idea of turning the Allied line and capturing the Channel ports.

There were but few and scattered Allied forces to oppose an advance in that direction—French Territorials, some cavalry and a Brigade of the British Royal Marines based on Dunkirk and distributed between Cassel, Hazebrouck and Lille.

There were four battalions, representing the Divisions at Chatham, Portsmouth and Plymouth and the Depot at Deal. The three first had some little time back been mobilized and sent over to Ostend to establish a Naval Air Base, but after three or four days had been sent back to England. With them was a certain proportion of the Royal Marine Artillery and a large number of motor lorries and omnibuses. It was intended that these should be utilized in making rapid and sudden raids on the enemy's lines of communication.

Von Boehm's unexpected advance not only frustrated this design but formed a serious menace to the Allied Armies, threatening to interpose between their left and the English Channel. At this juncture the Belgian Army in Antwerp assumed the offensive, recaptured Malines and Alost, and so threatened Brussels that von

* From The Army and Navy Gazette, March 30, 1918.

Boehm had to abandon his thrust and send back the greater part of his Army to counter the Belgian attack.

The German commanders now decided that as they could not mask Antwerp they must set to work to capture that city with the utmost despatch. Antwerp was at this time considered—except perhaps by the Germans—to be one of the strongest fortresses in the world. It had been fortified by the famous General Brialmont with a ring of forts at pretty close intervals and more recently had been further protected by an outer circle of up-to-date forts and redoubts from eight to ten miles distant from the city, something like 70 miles in circumference. These were strongly constructed of concrete, their guns being covered with Gruson cast-iron cupolas of great thickness. Behind this formidable series of defences it was popularly supposed that the Belgian Army could defy all comers for a very long period. But, in the event, this idea proved illusory. It must be remembered that the armor and armament of the forts came principally from Germany, and now we know more of German methods and are able to realize that she had been preparing an attack on her neighbors for many years, we may be justified in assuming that there were defects in these that rendered them very much less efficient than was to be expected. It must be borne in mind also that the Germans had established a very strong hold on Antwerp, both commercially and officially, long before the war. As far back as 1906 a French writer¹ estimated that there were 40,000 Germans established in that city, and the head of this colony was, he considered, indubitably master of Antwerp. Six out of the fourteen directors of the Bank of Antwerp were Germans; in the Chamber of Commerce the German representation was almost equally powerful. Of shipbrokers 28 per cent. were German, of freighters 17 per cent., of marine insurance agents or businesses 40 per cent., and the sixteen navigation companies plying between Antwerp and the Rhine were nearly all German. Such a powerful colony could not but have a strong social as well as commercial "pull" in the city, and German treachery and propaganda had easy soil to work on. All this almost certainly reduced the defensive value of the Belgian fortifications both materially and morally. When we compare the resistance made by the freshly constructed German "pill boxes" and concrete field works to our heavy ordnance, with the utter collapse of the massive

¹ M. Marcel Schwob, in *Le Phare de la Loire*.

concrete fortifications of Liege and Antwerp under the fire of the big German howitzers, we may well ask ourselves whether German treachery had not done half the work when they were in process of construction.

By September 28 the Germans had established their batteries in the neighborhood of Malines, from which place the Belgians had again been driven back, and commenced to bombard a sector of the southern line of the Antwerp defences, comprising Forts Liezel, Waelhem, Catherine, St. Wavre and Lièrre. On the day following Fort Wavre was silenced and Waelhem much knocked about. On the 30th the German guns concentrated on the latter, and though its garrison put up a very vigorous defence, inflicting heavy loss on the enemy's infantry attacks, it was finally silenced on October 2. Its guns had been all along outranged by the German heavy artillery, firing from a point $1\frac{1}{2}$ miles beyond their range. Meanwhile Forts Willebrook and Kessel had also come under fire, and by October 3 the Belgians had to fall back from the section lying between them and establish themselves in a line of trenches on the north bank of the River Nethe.

The imminent probability of the fall of Antwerp was realized in England as soon as her vaunted forts began to crumble at the commencement of the first serious attack by the Germans. Then came Winston Churchill's much-discussed proposal to save the city by sending three or four battalions of the Royal Marines and a number of absolutely raw Naval Volunteer battalions, which had neither training nor equipment,² to strengthen the defence till the 7th Division, the 3rd Cavalry Division, and certain French troops could be sent to its rescue. The scheme was entirely chimerical, since to carry out the proposed programme a force at least four times as strong would have been none too large, even if it could have been equipped with a formidable array of artillery. As it was, the only heavy guns available were four 4.7 naval guns mounted on railway trucks, which apparently did good service, and a number of 6-inch guns, which were to be manned by the R. M. A., and which were to have accompanied the R. M. L. I. Battalions to Antwerp, but which, from the unsuitability of their mountings for traction over the notorious Belgian *pavé*, had to be left behind. By some

² "Their training, although incomplete," said Mr. Churchill in his "apologia," "was as far advanced as that of a large portion, not only of the forces defending Antwerp, but of the enemy forces attacking." It would be interesting to know to which units of the Germany Army he was alluding.

means, however, four 6-inch guns were eventually got to Antwerp and placed in position near Forts 3 and 4 of the inner *enceinte*.

On October 3 the three headquarter battalions of Marines started for Antwerp by rail. The Plymouth Division at that time was quartered at the Mont des Chats, near Cassel, celebrated as the scene of a certain Duke of York's exploit in marching ten thousand men up a hill and marching them down again. This battalion went by rail *via* Dunkirk, and here the depot battalion, consisting mainly of recruits, was left behind.

Major General Paris, R. M. A., who had just been appointed to command the Naval Division *vice* Sir George Ashton, R. M. A., reported sick, had already gone on to Antwerp with Mr. Churchill, who was clad in a Trinity House uniform, which somewhat mystified the Belgians. His explanation that he was "*frère aîné de la Trinité*" left them, if anything, somewhat more bewildered than before. "We have come to save the city," he said, and the Belgians hoped that he would be able to perform his promise.

The Royal Marine Brigade arrived at Edeghen, half-way between Antwerp and the River Nethe, during the night of October 3-4, where it bivouacked till daybreak. In the morning the Marines were moved on to relieve the Belgians, who were entrenched along the River Nethe. They arrived in position about eleven in the morning and at once set to work to improve the defences.

Some companies of the Portsmouth Battalion with two machine-guns were sent across the river by the bridge leading into Lièrre, on the further side of which they set to work to erect a barricade. The Germans occupying a part of the village, tried to bring a field gun into action some way up the street leading to the bridge, but the fire of our machine guns was so deadly that they were unable to get off a single round. They therefore left the gun in the street and threw mattresses and other articles from the windows of the houses on either side until they had formed a barricade covering their gun; but even so they were unable to fire it until after dark. Then, however, they brought it into action and at once blew away the Marines' barricade, which had to be abandoned. The bridge was shortly afterwards blown up by the Engineers.

All that day and the next the Marines were exposed to severe bombardment from the enemy guns, though they hardly, if ever, caught sight of a German. Meanwhile the British Headquarters had been established in a mansion at Vieux Dieu, a village between Forts 5 and 6 of the inner ring of defences, and buildings had been

selected for the storage of equipment and provisions for the Brigade. These had hardly been occupied before they became special targets for the German Artillery, that in which the Marines' baggage was stored being set on fire and destroyed. Shells fell on Headquarters almost as soon as it was occupied. There is little doubt that German spies and sympathizers signalled their position. These gentry, thanks to the long-established German influence in Antwerp, seem to have swarmed behind the lines.

On Monday, October 5, the German attack was very heavy, and the officer commanding the Belgians on the right of the R. M. L. I. proposed that he should dash out of his entrenchments and make a counter-attack on the Germans facing him. "Do so if you think fit," said the officer commanding the Royal Marines, "but move out on your flank and make your attack from there, or if repulsed you will mask the fire of your own trenches and be followed into them by the enemy." Unfortunately this advice was disregarded, with the result predicted. The Belgians were driven out of their trenches by the Germans, thus exposing the right flank of the British. A retirement became inevitable, and the Marines set to work to entrench themselves along a position half a mile further back.

That night the Naval Battalions arrived in Antwerp. The 1st Brigade (comprising the *Drake*, *Benbow*, *Collingwood* and *Hawke* Battalions) occupied trenches between Forts 2 and 5; the 2nd Brigade (consisting of the *Nelson*, *Howe*, *Hood* and *Anson* Battalions) was stationed between Forts 5 and 9. But there was now little hope of prolonging the defence of the city. It had been intended to bring up the famous 7th Division, which, with the 3rd Cavalry Division, landed at Ostend and Zeebrugge on the 6th and 7th, but before committing it to the somewhat hazardous adventure, a British officer of high rank, accompanied by a well-known French General, motored into Antwerp to see for themselves whether there was any possibility of holding up the German attack. They inspected the fortifications and entrenchments and their armament, and at once came to the conclusion that to bring up the 7th Division was merely to lose it without the remotest chance of saving the city. The outer ring of forts had been broken through; the inner forts were obsolescent and too near the city. A great number of their guns were in a very bad condition, and of very little use. So, turning a deaf ear to Mr. Churchill's demands and

entreaties for more troops, they left the city, their military experience convincing them that the only chance of averting a regular *débâcle* to the Allied left was for the Belgian Army to retire at once, covered by the newly-arrived British troops, which, aided by them and various French units, including the famous "Fusiliers Marins," would be able to prolong our line to the coast.

During the 7th and 8th the bombardment continued. The Belgians were hopelessly out-gunned, and the Royal Marines had again to fall back and occupy entrenchments between Forts 5 and 6. Meanwhile the Germans had been pressing their attacks on Termonde with the object of crossing the Scheldt at that point and cutting off the retreat of the Belgian Army. It was a critical moment, and it was wisely determined to evacuate Antwerp at once, and fall back towards the coast before the way of retreat should be barred. The great oil tanks on the left bank of the Scheldt were set on fire, and the German ships lying in Antwerp rendered useless by the destruction of their machinery. Detachments of Marines were sent to assist in the completion of the pontoon bridge from Antwerp to the Tête-de-Flandre on the left bank of the river, and by nightfall on the 8th (Thursday) General Paris had issued his orders for the retirement of the Naval Division. The Royal Marines, as seasoned soldiers, naturally had the post of honour as rear guard to the gallant but amateur sailors of the two Naval Brigades. The Division, with the exception of the *Hawke*, *Benbow* and *Collingwood* Battalions of the Naval Brigade, which failed to get their orders and remained behind, crossed the river in safety and marched to St. Gilles Waes, where it bivouacked for the night, whence the Chatham and Plymouth Battalions R. M. L. I. and most of the naval battalions entrained and ran through to Bruges and Ostend.

The Portsmouth Battalion R. M. L. I. and another naval battalion were not so fortunate. Their train, in which were also a considerable number of Belgian refugees, was intercepted by the Germans, who had pushed forward troops after having succeeded in capturing Termonde. The Belgian driver brought his train to a standstill, jumped off and ran away. The Germans had blocked the line, and there was nothing for it but to detrain.

"Surrender!" cried a German officer.

"Surrender be damned! Royal Marines never surrender!" replied Major French, whose father had also served in the corps, and, collecting together as many men as he could at the moment, he

boldly charged the enemy and succeeded in cutting his way through and bringing his little force to the British lines. In the confusion of his sudden onslaught a number of the Naval Battalion and some Marines contrived to get away and effect their escape into Holland, where they were interned, but unfortunately a very large percentage of the British were made prisoners. The *Hawke*, *Benbow* and *Collingwood* Battalions crossed the river the next day in boats and on rafts, the pontoon bridge having been destroyed. Some were captured by the Germans at Nieuwerken, near St. Nicholas; others, met by a false report at Soheren that the Germans had cut the line ahead of them, turned north and managed to reach Holland, where they were interned. Others got into Dutch territory by going down the Scheldt in boats.

Although the Antwerp Expedition was a fiasco, and could not well have been anything else under the circumstances, the Royal Marines, while they had no opportunity of gaining additional leaves for their laurel wreath, "sustained fully," said Mr. Churchill, "by their firmness, discipline and courage, the traditions of their corps. It is unnecessary to say more than this."

One word in conclusion. It is easy to be wise after the event, but one cannot help thinking that if the Royal Marine Brigade had been left at Ostend in the first place, and, with civil and local assistance, at once set about entrenching Ostend and Zeebrugge with the same eye to possible, even if improbable, eventualities that induced the Germans to fortify the line of the Aisne, the Expedition to Antwerp would not have taken place, and the war in many of its phases have worn a different and, perhaps, more favorable aspect.

ROYAL MARINES AT ZEEBRUGGE *

THE following telegram has been sent by the Adjutant-General, Royal Marines, to the Senior Officer of the 4th Battalion, R.M.:

"I am directed by the First Sea Lord to convey to the Officers, N.C. Officers, and Men of the 4th Battalion, Royal Marines, his appreciation and thanks for the great gallantry displayed by them in the recent attack on Zeebrugge. The losses have been heavy, but the discipline and courage of the Battalion are worthy of the highest traditions of the Royal Marines. Please take steps to have this communicated to all ranks, and also add the congratulations of the A.G., R.M., on the fresh laurels they have added to the splendid records of the Corps"

(REPLY)

"ADJUTANT GENERAL,

"ROYAL MARINES, LONDON.

"Will you please convey to the First Sea Lord the thanks of the Officers, N.C. Officers, and Men of the 4th R.M. Battalion for his kind message of appreciation and thanks which I have conveyed to them. All ranks are proud of having won such words of praise from him. Will you, Sir, also accept our thanks for your congratulations?

"B. G. WELLER, MAJOR, R.M.L.I.,

"Comdg. 4th R.M. Battalion."

The following gracious letter from His Majesty the King and reply of the Adjutant General, Royal Marines, are promulgated for information:

"DAVID MERCER, A.G., R.M.

"Windsor Castle, 28th April, 1918.

"MY DEAR ADJUTANT GENERAL,

"By command of the King, I write to express, through you, to the Royal Marines, His Majesty's high appreciation of their gallant conduct during the recent operations undertaken at Zeebrugge and Ostend.

"It is a matter of special interest to the King to remember that the 4th Battalion, which took part in the fighting, was at Deal on the occasion of His Majesty's inspection on March 7th.

"As you are aware, the King has already sent a message to the Vice-Admiral at Dover, conveying His Majesty's congratulations on

* From The Globe and Laurel.

the success of the operations and appreciation of the conduct of all arms under his command, and, as this comprises the Royal Marines, you will understand that the King is not sending a special message to your Corps.

"At the same time, I am to assure you of the King's deep sympathy with the relatives of those who lost their lives, as well as His Majesty's solicitude for the progress of those who have been wounded, one and all having so valiantly maintained the splendid traditions of the Royal Marines.

"Believe me, my dear Adjutant General,

"Yours sincerely,

"(Signed) CROMER.

"Major General Sir David Mercer, K.C.B.,

"Adjutant General, Royal Marines."

"ADMIRALTY, 35 SPRING GARDENS, S.W.1.

"29th April, 1918.

"DEAR LORD CROMER,

"I have to acknowledge the receipt of your letter of the 28th inst., conveying His Majesty's high appreciation of the gallant conduct of the Officers and men of the Royal Marines during the recent operations against Zeebrugge and Ostend.

"The King's most gracious message of congratulations to the Vice-Admiral at Dover had already been communicated to the Royal Marines who formed part of the combined expeditionary force, which they deeply appreciated.

"On behalf of the whole Corps will you please express to the King my most respectful and dutiful thanks for the further great honour he has conferred upon us by this additional gracious and inspiring message, which is very greatly prized by all ranks, but especially by the Officers and men of the 4th Battalion, who were undergoing a special course of training for this expedition at the time of His Majesty's visit to Deal on the 7th March last.

"I would further express my gratitude for His Majesty's kind words of sympathy with the relatives of those who lost their lives and for his solicitude for the progress of the wounded, and will convey to them his gracious message.

"Yours very sincerely,

"(Signed) DAVID MERCER.

"The Right Honorable the Earl of Cromer, M.V.O.,

"Grenadier Guards."

ASSOCIATED PRESS DISPATCHES CITING MARINES IN FRANCE. MARINES AT CHATEAU THIERRY

WITH THE AMERICAN ARMY IN PICARDY, June 7 (Associated Press).—As the result of the two attacks by the Americans upon the enemy in the second battle northwest of Chateau Thierry yesterday and to-day, 300 prisoners have been captured and the Americans have extended their line over a front of about six miles to a depth of nearly two and one-half miles.

While the losses of the Americans necessarily have been heavy, owing to the nature of the fighting, the German dead are piled three deep in places.

A number of machine guns have been added to the American booty.

The fighting last night raged with great fierceness for five hours. The Americans captured Bouresches and entered Torcy.

Twenty-five Americans in Torcy engaged and drove out 200 Germans and then withdrew to the main line on the outskirts of the town.

A remarkable story is told of a company of marines, all the officers of which, including the Sergeants, were put out of the fighting. A Corporal then assumed command and the men pushed on and obtained their objective.

Private John B. Flocken, of Olney, Ill., one of the first men to reach Torcy, said to-day:

"I never saw such wonderful spirit. Not one of our fellows hesitated in the face of the rain of the machine gun fire, which it seemed impossible to get through. Every German seemed to have a machine gun. They fought like wildcats but the Americans were too much for them."

The German prisoners taken, many of whom are mere boys, have only been in the line for two days. Some wore the white bands of the Prussian Guards.

Private Carl B. Mills, of Visalia, Cal., was in the first wave of Americans to go over the top in Veully Wood to smoke out the Germans remaining there. He said that after his unit attained its objective, many of the men went back and filled the ranks of their advancing comrades. All worked like clockwork, he said.

The favorite slogan was, "Each man get a German; don't let a German get you."

Many instances are related of the heroism of the Red Cross workers in braving shells in No Man's Land and gathering in or aiding wounded.

The correspondent to-day talked with a 19-year-old German prisoner, who was sitting under a tree eating American bread and drinking French wine. He was the object of the curiosity of a crowd. The soldier said that he had been fighting a year and a half, mainly in Russia. He carried a picture of his sweetheart on heavy cardboard, which he said had saved his life from an American bullet.

The youth added that in Germany there was talk of millions of American soldiers, but nobody believed it. He did not know that it was the Americans opposed to the Germans. He thought the troops were British, as they wore English helmets. He added that the German soldiers no longer hoped to reach Paris. All of them were sick of the war, and he was glad that he had been made prisoner.

The importance of the operations of the Americans on the Marne sector may be realized when it is recalled that only the day before the Americans entered the line the Germans advanced about ten kilometres.

The Americans are now holding the Paris road near Le Thiolet for a number of kilometres.

DROVE GERMANS HEADLONG FROM TORCY

WITH THE AMERICAN FORCES ON THE MARNE, June 7 (Associated Press).—At daybreak to-day the United States marines, following up their gains of yesterday, were slowly driving the Germans back in the face of heavy artillery fire, including gas shells. The American artillery was performing magnificently in this operation. Torcy was then being held in the face of repeated counterattacks, while the marines were pushing the enemy through the streets of Bouresches.

Fierce fighting was going on in Belleau Wood, the one point of yesterday's objectives that was not fully attained by the Americans.

The American plan had not included the taking of Torcy, but the marines swept into it late in the day and drove out the Germans. At the same time they pushed their way into Bouresches.

No one who saw the marines in action yesterday and to-day could fail to agree thoroughly with the exclamation of their commander, himself an army man, when he said:

"I just wish I had an army corps of 'em here."

ADVANCED YELLING LIKE INDIANS

The artillery fire that preceded the first advance yesterday morning lasted an hour, and was of especial intensity for five minutes preceding the time when the marines went over the top. French and American batteries both took part in the firing, putting down a rolling barrage, and then shifting to the roads behind the German lines.

As the Allies started out, the Prussians who opposed them put up a brisk fight, for their officers were among them, urging them on. The marines dashed into them yelling like Indians and plying bayonet and rifle.

The Americans who advanced in the Belleau Wood region went forward in four waves in open formation. The men in the first wave were armed for the most part with rifles and bombs while the rear waves were equipped with automatic rifles. With them came squads of machine gunners lugging their collapsible guns. They crossed the open space and coiled up the slope bent over like gnomes.

The trenches that the marines passed over were clearly visible from below, but they hardly deserved the name, for they were simply lines of little holes, each big enough to hold a man, while barbed wire was lacking there. There was some, however, interlaced among the trees of Belleau Wood, but the marines pushed their way through it.

Out in the open, field artillery officers with glasses were directing the supporting fire, while on the roof of a nearby farmhouse a signal man wigwagged with his red and white flag.

On all sides the guns were flashing, some of them stationed right out in the field, while others were hidden in the woods. Looking down into the valley, only a mile away, the village of Bussaires could be seen on fire. As the correspondent watched the scene the clouds of white shrapnel smoke over the village of Torcy also became brownish and flames appeared in that town.

Following upon their early successes, which inflicted heavy losses on the Germans, a second attack began at 5 P.M. This was undertaken largely because of the splendid showing the marines had made, coupled with the discovery that the morale of the Germans was low, which made the going easier for the fiery soldiers of the Marine Corps.

GET ENEMY ON THE RUN

The second advance was carried out by the same men who attacked in the morning, and who had had no rest. They asked nothing, however, but plenty of ammunition, and hardly ate the food that was brought up to them, so absorbed were they in the task of chasing the enemy as far as possible.

The marines in this new forward sweep took strong ground on either side of Belleau Wood and cleared out the ravine south of Torcy, which linked up the line with Hill 142, which had been taken this morning. This gave them a strong and dominating position for a continuation of their attack. Their total advance was approximately two miles on a three-mile front.

The marines reached all their objectives set for the first hour within that time limit, and pushed beyond them. Early reports indicated that the Germans were on the run for the time being and surrendering right and left to the Americans.

There was evidence, however, of coming counterattacks, for even before 5 o'clock the roads behind the German lines were filled with troops, guns, and wagons. The American artillery turned on them and created havoc.

During the night the marines reached the outskirts of Bouresches and poured volleys of machine gun fire into the enemy, inflicting terrific casualties. Bayonets were used freely against many of the Germans who attempted to make a stand in the streets.

FORESTALLED A GERMAN ASSAULT

The morale of the American troops was wonderful. They talked with pride last night of the heavy casualties inflicted on the Germans.

It appears that the marines forestalled an attack by the enemy. This was to have been carried out by the Prussians, who had been put into the line for that purpose, and was to have taken place to-day or to-morrow. These men had relieved the Prussian Guard division, which was badly chewed up in the fighting of the last day or two. They, in turn, had relieved the Saxons, just after the marines took over the sector, so the marines are proud of the fact that they have used up three German divisions in less than a week, and are still very much alive themselves.

During the day's advance one marine who was taking back a prisoner ran into two German officers and ten men. He tackled them

single-handed with his rifle and bayonet, killed both officers, and wounded seven of the men.

Another Sergeant was about to take a prisoner, when the German threw himself on the ground and discharged his revolver at the American after calling "Kamerad." That settled the German, for the Sergeant shot him, as he did four others who also had surrendered but refused to put up their hands.

The morale of the prisoners is remarkably low. All are Prussians. They express themselves as tired of the war and glad to get out of the fighting. This is despite the fact, they say, that they are supplied with food, although the Saxons, the Württemberg troops, and others may go without.

WITH THE AMERICAN FORCES ON THE MARNE, June 7 (Associated Press).—The American marines, who began a second attack on the German lines late yesterday, captured the village of Torcy and drove their way into Bouresches, northwest of Chateau Thierry. This morning they were holding Torcy in the face of repeated counter-attacks and were pushing back the Germans through the streets of Bouresches. Virtually all their objectives in this attack were attained.

The American plan did not include the taking of Torcy, but the marines swept into it and drove out the Germans.

The one point where the objective was not reached was on the right of the attack in the Belleau wood. The fiercest fighting is continuing here.

American marines last night reached the outskirts of Bouresches and poured volleys of machine gun fire into the enemy, inflicting terrific casualties. Bayonets were used freely against many of the Germans who attempted to make a stand in the streets. At daybreak to-day the marines were slowly driving the Germans back, in the face of heavy artillery fire, including gas shells.

The American artillery was performing magnificently in this operation.

FOES SURRENDER RIGHT AND LEFT

WITH THE AMERICAN FORCES ON THE MARNE, Thursday, June 6 (Associated Press).—The second attack made to-day by American marines on German positions northwest of Chateau Thierry early gave promise of being as successful as this morning's assault. The marines reached all their objectives set for the first hour within that

time limit, and pushed beyond them. The early reports indicated the Germans on the run for the time being and surrendering right and left to the Americans.

One of the toughest of all the objectives, Belleau wood, some four miles from Chateau Thierry, was swept by the marines without serious trouble. There seemed reason to expect German counter-attacks in strength before long, for previous to the beginning of the afternoon attack, which began at 5 P.M., the roads behind the German lines were filled with troops, guns and wagons, but the American artillery turned on them and created havoc.

CAPTURE STRONG POSITIONS

The marines in their forward sweep took strong positions on either side of Belleau wood and cleaned out the ravine south of Torcy, which linked up the line with Hill 142, which was taken this morning. This gave them a strong and dominating position for a continuation of their attack. Their total advance was approximately two miles on a three-mile front. The total number of prisoners taken was not known this evening, but additional captives were brought in after the morning attack, which netted about 100 prisoners.

A notable development was the low morale of the prisoners, all of whom are Prussians. They expressed themselves as tired of the war and glad to get out of the fighting. This was despite the fact, they say, that they are furnished with food, although the Saxons, the Württemberg troops and others may go without.

ONE MARINE TACKLES TWELVE FOES

It must not be imagined, however, that they did not put up a fight this morning, for their officers were among them urging them on, but the marines dashed into them yelling like Indians and plying bayonet and rifle. One marine who was taking back a prisoner ran into two German officers and ten men. He tackled them single-handed with his rifle and bayonet, killed both the officers and wounded seven of the men.

Another sergeant was about to take a prisoner when the German threw himself on the ground and discharged his revolver at the American, after calling "comrade." That settled the German, for the sergeant shot him, as he did four others who also had surrendered but refused to put up their hands.

HOW ADVANCE WAS MADE

The marines advancing in the Belleau wood region went forward in four waves in open formation. The men in the first wave were for the most part armed with rifles and bombs, while the rear waves were equipped with automatic rifles. With them came squads of machine gunners lugging their collapsible guns.

They crossed the open space and toiled up the slope bent over like gnomes. The trenches the marines passed over were clearly visible from below, but they hardly deserved the name, for they were simply lines of little holes, each big enough to hold a man, while barbed wire was lacking. There was some, however, interlaced among the trees of Belleau wood, but the marines pushed their way through it.

Out in the open field artillery officers with glasses were directing the supporting fire, while on the roof of a nearby farmhouse a signal man wigwagged with his red and white flags. On all sides the guns were flashing, some of them stationed right out in the field, while others were hidden in the woods. Looking down into the valley, only a mile away, the village of Bussaires could be seen on fire. As the correspondent watched the scene the clouds of white shrapnel smoke over the village of Torcy also became brownish and flames appeared in that town.

INTENSE ARTILLERY FIRE

The artillery fire that preceded the attack lasted an hour and was of especial intensity for five minutes preceding the time when the marines went over the top. French and American batteries both took part in the firing, putting down a rolling barrage and then shifting to the roads behind the German lines.

It appears that the marines in going in forestalled an attack the Germans had planned. It was to have been carried out by the Prussians, who had been put into the line for that purpose, and was to have taken place either to-day or to-morrow. These men had relieved the Prussian Guard division, which was badly chewed up in the fighting of the last day or two. They in turn had relieved the Saxons, just after the marines took over the sector, so the marines are proud of the fact that they have used up three German divisions in less than a week and are still very much alive themselves.

MORALE IS WONDERFUL

The morale of the men is wonderful. They are willing to attempt anything and are talking with pride of the heavy losses they inflicted upon the Germans in their attack this morning, while all the early reports indicated that the afternoon attack had been even more costly to the enemy.

This latter attack was undertaken largely because of the splendid showing the marines made in the morning, coupled with the discovery that the morale of the Germans in the opposite position was low, which made the going easier for the fiery soldiers of the Marine Corps. The advance was carried out by the same men who attacked in the morning and who had had no rest. They asked nothing, however, but plenty of ammunition, and hardly ate the food that was brought up to them, so absorbed were they in the task of chasing the enemy as far as possible.

No one who saw the marines in action to-day but thoroughly agreed with the exclamation of their commander, himself an Army man, when he said: "I just wish I had an Army corps of 'em here."

EXTENT OF GAINS

WITH THE AMERICAN ARMY IN PICARDY, June 6 (Associated Press).—American marines attacked the Germans at dawn this morning and gained three and one-half kilometres (more than two miles) over a four-kilometre front (two and a half miles) and captured 100 prisoners in the Chateau Thierry sector. The French attacking at the same time on the left took 160 prisoners.

The Americans now hold all the important high ground northwest of Chateau Thierry. The marines again attacked at 5 o'clock this afternoon.

The Americans have been pressing the Germans so hard that the enemy has been forced to throw three new divisions of his best troops in the line during the last three days.

AMERICANS LIKE TIGERS

The Americans are like tigers. Their commanders have all they can do to hold the men back. Even the wounded are enthusiastic and eager to fight. They are proud of their wounds. A general who visited a field dressing station said he was elated by the sight.

The Americans sang and whistled "Yankee Doodle" and cheered

as they went over the top. They made their way swiftly through the German dead that lay strewn in No Man's Land.

In addition to prisoners, the Americans captured ten machine guns. German prisoners said they had not been fed for four days owing to the deadly fire from the French and American guns, which prevented the bringing up of supplies. These Germans were without helmets. They were tired of the war. They had been told that the British opposed them, as their commanders were afraid to let them know that it was the Americans.

CLEARED OUT OF VEUILLY WOOD

The Germans were cleared out of Veully wood also by the Americans, whose guns were thundering against the enemy this evening.

The French attack this morning was to straighten out the American line, and it was a brilliant performance. In this they were assisted by the American forces. American infantry cleaned out one group of thirty-five uhlans, who were mounted.

"Don't let one escape," shouted a big American. All but one were killed; he was captured.

The Americans advanced in a solid phalanx, their strong, determined faces and great physique an inspiration to their gallant French comrades, who now regard them with brotherly affection.

MARINES FIGHT WAY OUT AGAINST SUPERIOR FORCE, TAKING PRISONERS AND GUNS

LONDON, June 7.—German troops fled before the bayonets of the American marines in the action between Veully and Torcy Thursday, according to the correspondent of the *Daily Mail* with the American forces in France.

Wounded soldiers, he adds, tell how one company of marines fighting in a wheat field, became surrounded by superior numbers, but eventually fought their way out in the face of severe German machine gun fire. In addition they captured several machine guns.

The American troops, the correspondent adds, showed considerable skill in using cover and thereby reduced their losses appreciably. Despite this caution, however, they made the pace too hot for the Germans. The full haul of prisoners, it is added, may reach 300.

Several wounded Germans complimented the Americans on their

fighting, saying they were as good soldiers as the Germans. The Americans adapted themselves quickly to the situation and carried out their instructions without a flaw.

WITH THE AMERICAN ARMY IN FRANCE, June 10 (Associated Press).—The United States Marines attacked the Germans after daybreak this morning and penetrated the German lines for about two-thirds of a mile on a 600-yard front in the Belleau wood, northwest of Chateau Thierry. The Germans now hold only the northern fringe of the wood. The Americans captured two minenwerfer, which are the largest pieces yet taken by them. It is expected that one will be sent to Washington and the other to Annapolis.

MAJOR TAKES PRISONERS

Major Edward J. Cole, commanding the machine gun battalion, captured several German stragglers during the early stages of the attack. Numerous machine guns, it is believed, will be rounded up in the woods.

The 9th and 23d regiments of infantry, comprising what is known as the Syracuse brigade, hold the ground on the right of the marines, at the point of the front nearest Paris. This is the second time the Syracuse brigade has held the point on line nearest the capital, the former occasion being at the offensive, when the allies were still falling back and the 9th and 23d went in at Coulomb for a short time. The 23d captured machine guns June 6, while supporting the attack by the marines.

GUNS ACTIVE ON TOUL FRONT

On the American front northwest of Toul the artillery fire was fairly heavy last night and to-day. There has been normal aerial activity. Otherwise nothing of importance has taken place.

Lieut. Edgar Lawrence, of Chicago, flying in an airplane, crashed from an altitude of 1000 metres last Wednesday, forty miles behind the front. He was instantly killed. The cause of the accident is not known.

THE MARINES AT CHATEAU THIERRY *

There need be no mystification over the signal success which has attended the United States Marines, brigaded with Pershing's forces, in their operations against the Hun.

* From Arms and The Man, June 15, 1918.

Chance played no part in the victories. Even the splendid traditions of the corps did little more than hold the men up to their fighting mettle. The Marines scored against the boche *because each man was confident of his ability to fight, and that confidence was born of his skill in marksmanship.*

The achievements of the Marines northwest of Chateau Thierry are almost certain to exert a far-reaching and beneficial effect in this country. What they have done is not alone to be measured either by the few kilometres of territory regained, or by the number of prisoners taken; nor yet by the deeds of individual valor which marked their fighting and which have proved to the German soldier that the American is no mean antagonist. The real significance of the success with which the Marines turned back the tide of Hun assault is to be found in the fact that the outcome of the fighting is incontrovertible proof that *an ability to shoot is still the old "seven-tenths of a soldier's business," and that it wields a tremendous influence upon the other three-tenths.*

For ten years past the leading exponents of skill with firearms have been found among the officers and men of the Marine Corps. During this period, target practice has been no haphazard, hit-or-miss affair in the corps. It was, and still is, regarded as a serious business and the rifle ranges to which the Marines are frequently ordered for instruction are operated upon lines calculated to best insure the greatest number of expert riflemen in the shortest space of time compatible with the importance of the work. In the Marine Corps, the man who has attained the rating of expert riflemen is encouraged to keep up practice whenever opportunity offers, and the shooting game is made especially attractive.

As a result of this decade, and more, of preparation, when the division of Marines was sent to France with the American Expeditionary Force not one of the rank and file was unacquainted with the principles which underlie successful marksmanship. The best of them were therefore thoroughly equipped to enter upon post-graduate courses to fit them for duty as snipers; the others were sufficiently skilled to measure up to the high standards of straight shooting which are part and parcel of the traditions of the corps, and *all of them possessed that thorough self-confidence which can come only to the fighting man who knows how to get the best out of his weapons, and which has now been so undeniably justified in the fighting around Chateau Thierry.*

This emphatically was not the case in our "old army," nor was it true in many of the units which were sent with Pershing. Unfortunately, prior to our actual entrance into the war, a belief that the fire of untrained riflemen would prove more deadly than the fire of trained marksmen had gained all too much currency among many high army officials, upon the mistaken theory that, with men untrained in the use of firearms, a greater dispersion of fire might be obtained. We have lately been told by the commandant of the Camp Perry School of Small Arms Firing that the origin of the former widespread opposition to rifle practice in the army could be traced to the pernicious propaganda of German militarists, who, failing to develop marksmen among the soldiers of the Kaiser, wished to impede as much as possible the progress of other nations in the development of expert rifle shots.

General Pershing, however, is not to be included in the category of officers who permitted themselves to be deluded by pro-German fallacies. On the contrary, while friends of rifle practice outside of the service fought hard but with indifferent success for years against the sentiment which favored little or no rifle practice, it was Pershing to whom, because of his urgent request that no man be sent overseas untrained in the use of arms, must go the credit of having done more than any other one man to dispel the effects of obstructionist effort during the years preceding the great year.

With all that Pershing has said, however, it has remained for the Marines to supply concrete proof of the advantages of rifle practice, even though the soldiers of the sea did not rely entirely upon the service weapon. Authentic dispatches state that in one decisive stage of the first fight the Hun was held at bay by the withering fire from the "Leathernecks'" Springfields, while other stages called for the best the Marine machine gunners had in their Lewis gun magazines, as well as for some fierce hand-to-hand fighting with the bayonet. The point is that the Marines entered the fight confident that they could depend upon their skill as marksmen, if upon nothing else, and that confidence underlying their work with rifle, machine gun and bayonet ended in disaster for the Hun.

Both the Army and the Marine Corps now serving in France have been drawn from similar sources. Before the Great War each was recruited from that class of adventurous men who at all times seek to make war their trade. With the coming of war, this class of men formed the nucleus around which was gathered men of all classes,

with a considerable leaven from the graduates of colleges and from the professions. There can be no invidious comparisons between the men of the Army and the men of the Marine Corps, so far as courage and the will to win is concerned. The difference, as fighting men, between them to-day is that the Marine is a trained fighter and a skilful shot, while many of the soldiers have yet to become trained shots.

And so it all leads back to this: If one, after hearing Pershing's urgent call for expert marksmen, and after learning from so responsible a source that Hun propaganda was more than likely responsible for our army's failure to turn out hundreds of thousands of skilled shots in preparation for the war which came and found us unprepared, still doubts the value of trained riflemen, the work of the Marines at Chateau Thierry should set those doubts at rest.

MARINE OFFICERS AS OFFICERS OF THE DECK

AFTER the successful operation for more than a year on board of the flagship of the United States Atlantic Fleet, where a Marine officer has been serving as senior watch in port to the satisfaction of higher authority, the following order was issued by the Commander-in-chief of the Atlantic Fleet, under date of April 20, 1918:

File 1645

13-C1 (O)

UNITED STATES ATLANTIC FLEET,
U. S. S. Pennsylvania, Flagship,
20 April, 1918.

From: COMMANDER-IN-CHIEF.

To: BATTLESHIP FORCE TWO,
BATTLESHIP DIVISION NINE,
CRUISER FORCE.

Subject: Deck duty for Marine Officers.

1. It is directed that all marine officers serving in the ATLANTIC FLEET, below the rank of major, when duly qualified, stand deck watches in port; senior marine officers standing Officer-of-the-Deck watches and junior marine officers standing junior Officer-of-the-Deck watches.

2. Marine officers who are not considered qualified will stand watches, under supervision, until such time as they are competent to take charge of the deck.

H. T. MAYO.

PROFESSIONAL NOTES

THE GUN THAT WAS "ON PAPER."¹ Being an Account of the First Public Demonstration of the Browning Automatic Military Rifle, by Stephen Trask.

The Browning Machine Rifle is no longer "a gun on paper."

Armed with this latest of lethal weapons, twenty enlisted men deployed as skirmishers and advanced across the Congress Heights Rifle Range, a few miles from Washington, on February 27. Firing from the hip, they sprayed the terrain ahead of them with steel-jacketed bullets which left the muzzles of the wicked little automatics at the rate of 400 shots a minute.

The "marching fire" with the new rifle came as the dramatic climax of a demonstration which the War Department offers as proof that the United States has an automatic, rapid-firer which the army declares is easily mobile, and even a better weapon for the trench fighting of the Western Front than the wicked little French *Chauchat*.

During the exhibition, the new gun was fired from the shoulder and from the hip, and was put through its paces for the education of a large gallery of army officials, foreign military observers, veteran riflemen, members of Congress and newspaper men. After the demonstration of the Browning Machine Rifle, the heavy Browning Machine Gun was exhibited publicly for the first time.

Although the Browning Heavy Machine Gun has been heralded as the choice of the United States Army over all existing rapid-firers which must on account of their weight be used on tripod mounts, the two which were on exhibition at Congress Heights did not attract one-tenth of the attention that the Light Browning received. Here was something entirely new; something that the French have approached in the *Chauchat*, but also something which the military world has been awaiting for a decade. And so army officers, foreign observers, and military riflemen to a man were deeply engrossed in the performance of this latest addition to the battlefield Ordnance of the United States.

¹ From *Arms and The Man*, March 2, 1918.

If the Browning Machine Rifle functions as perfectly on the field of battle as it functioned during the demonstration; if the rank and file of machine-gun companies are able to handle it with the same ease that the twenty picked enlisted men showed in operating it; it would seem that the United States has at last discovered that which ballistic engineers have been seeking for years past in response to numerous invitations from every first-class power—an automatic rifle satisfactory for military uses, easily mobile, and capable of being fired from the shoulder by the man of average physique, yet possessing the rapid-fire characteristics of a machine gun.

Naturally the demonstration which was held at Congress Heights can in no way be considered as an exhaustive test. No effort was made to put the guns through tedious trials to which every new weapon must be subjected in order to prove its fitness for field service. All of these tests have already been held, according to the War Department, and when subjected to far more rigorous treatment than would be encountered even in actual service, the guns are said to have made a remarkable showing.

So the demonstration at Congress Heights was but a "dress parade" of the finished automatic rifle, so far as the army was concerned, and a peep behind the curtain of secrecy with which the government has shrouded its new death-dealer, so far as the public enters into the question. But the peep seems to prove conclusively that the weapon which so many have believed would never materialize, but would remain on paper until the end of time, is a concrete fact. What this rifle will do on the Western Front cannot be prophesied. That remains with history.

Yet the men who witnessed the demonstration of the Light Browning were present, so to speak, at the christening of a "war baby" which may wield a monstrous influence in the battles of 1918. If the French have found the *Chauchat* an ideal weapon for trench action, there would seem to be no reason why the Light Browning should not stand the Sammies in good stead. Although little is generally known in this country about the *Chauchat*, it is to be presumed that the army men believe the Browning to be a better gun, inasmuch as the Ordnance Department has been testing the French weapon for months, has had ample opportunity to demonstrate its

capabilities, and has at last chosen the Browning to do the work which is now being done by the United States forces in France with borrowed *Chauchat* rifles.

As yet, there is no technical description of the Light Browning available, but it is known to be an air-cooled, gas-operated gun, weighing 16 pounds, with magazine unfilled, and capable of firing bursts of 20 or 40 shots, at the rate of 400 a minute.

The new machine rifle does not look unlike a heavy service arm. It is well stocked, with a broad, shot-gun butt which fits comfortably against the shoulder. It is fitted with swivels and a service sling, which, however, is not used as the military rifleman customarily uses the strap. It has a modified pistol grip, and a broad, heavily checkered fore-stock, affording a firm hold. There is no protuberance underneath the stock, resembling the "door-knob" palm rest on Scheutzen rifles, which have been present in other models of automatic rifles. The lines of the weapon are good, although noticeably sturdy to eyes used to the lean lines of service rifles.

The sighting equipment is that of the Model 1917—a receiver peep set close to the eye, and a front sight blade without the wings which appear on the so-called modified Enfield—changed slightly to meet the requirement of rapid-fire work.

Just what value the sighting equipment as it stands will be, remains to be seen. It would seem that if the army hopes to fire aimed shots from the shoulder, in automatic fire, the peep should be much larger than the .09 of an inch which is the regulation 1917 aperture. On the other hand, the .09 aperture would probably be quite serviceable in firing the new rifle from the prone position, in semi-automatic fire.

Although the bore is the same as that of the Springfield or the Model 1913, the barrel is markedly heavier, and terminates in a tube of thin steel which projects about four inches beyond the muzzle of the rifle proper. This false muzzle is known as "the flash hider," and is provided to conceal the spurt of flame which would betray the position of the weapon in night firing.

The most striking characteristic of the mechanism of the Light Browning is its simplicity, in view of the apparently almost perfect functioning. There are but twenty principal parts to the gun, which can be reduced to components with the aid of no more intricate a

tool than a service cartridge with which to release catches and unseat pins. The parts themselves are strong and appear to have been made to stand considerable wear.

The system of operation is not strikingly different from that of other gas operated guns. The first shot, fired after the piece has been cocked by hand, starts the functioning, a portion of the gas generated by the explosion of the bullet being sucked into a gas chamber through a vent in the barrel, to act upon a piston and drive it backward, thus operating the breech mechanism.

The real military value of the Browning rifle lies in its light weight, and the special features which have been added to the basic principle of gas operation, such as its use either as an automatic or a semi-automatic weapon; the adaptation to it of the box-magazine principle doing away with both drum and belt feed; the standardization of its parts, which not only makes for simpler dismounting and assembling, but facilitates repairs in the field, and the ease with which new magazines may be attached.

To understand the general features of the Browning Machine Rifle, it is best to start from the beginning, with the box magazine. This magazine, which recalls the protruding magazine of Great Britain's old Short Enfield, is made in two sizes. The first size, which is the one most commonly used, holds 20 U. S. G. .30-calibre cartridges. The other has a capacity of 40 cartridges. These cartridges can be loaded into the magazines in the same manner that a clip of ammunition is shoved into the magazine well of a service rifle, to accomplish which a small device known as a "loader" is provided. When the 20—or the 40—cartridges are shoved down on the magazine follower, there is compressed a spring very much like the magazine follower spring of the Springfield, save that the Browning spring is a zigzag of wire, instead of flat spring steel.

The magazine is attached to the rifle by simply pressing it home in the bottom of the magazine well, and when this is done, all that is needed to prepare the gun for action is to pull back the cocking-piece knob on the left side of the rifle, which opens the breech and permits a cartridge to rise from the magazine, the cartridge being carried into the chamber when the cocking piece is shoved forward to close the breech and to lock on a stud.

If the gun is to be used for automatic fire, the gunner shoves

a pointer, fixed below the cocking-piece knob, forward to a point marked "A." Then when the trigger is pulled, the magazine will automatically be expended in from $2\frac{1}{2}$ to 3 seconds. If the gunner wishes to fire slowly, aiming his shots, he moves the indicator under the cocking piece to "S," which insures semi-automatic fire. When adjusted in this manner, separate pressures of the trigger are required for each shot, in much the same manner as an army automatic pistol is used.

When a magazine is empty, it is instantly released from the rifle by pressure on a button, and a new magazine snapped in place. This change of magazines, it is estimated, requires not more than 3 seconds.

Empty shells, in the perfected model of the Browning rifle, are ejected from the side of the gun, never crossing the sight of the rifleman and being thrown aside with sufficient force to fly far beyond his notice.

One of the features of the gun which is commented on most favorably is that when the gun is in automatic action, the cocking handle remains stationary, being so arranged that it will in no way hamper the gunner, thus eliminating a danger common to many types of rapid-firers.

Naturally, in a gun such as the Browning, where the reduction of weight is a prime requisite, the question of cooling has a marked effect upon the capabilities of the weapon. Powder gases create terrific heat, sometimes developing the destructive temperature of 4000 degrees Fahrenheit. So all air-cooled automatic rapid-firers have their limitations. The Browning gun, however, cools remarkably quickly, considering the fact that none of the air-cooling systems in use could be taken advantage of because of the weight which would be added thereby, and it is possible to fire from it 350 rounds continuously without having to stop to permit the rifle to cool.

The problem of supplying ammunition for rapid-firers which eat up ball cartridges at the rate of from 400 to 600 rounds a minute, has always been a stumbling block in the way of using machine guns in tactical warfare. Until the present European conflict settled down to trench fighting, between forces at close ranges, the machine gun was regarded as being most useful only as a weapon for the defense of positions, because of the difficulty of transporting ammunition with the guns. In fact, in the opinion of many veteran observers, the usefulness of the heavier types of guns, not

easily mobile, will be sadly hampered if the entrenched lines of the contending forces in the present struggle are ever broken and open fighting resumed.

However, an automatic rifle of the Browning type can, in the opinion of many military authorities, be just as useful in open fighting as in trench warfare, since a considerable supply of ammunition can be taken with the crew of each gun.

The Browning Machine Rifle gunner carries approximately 120 rounds of ammunition in his belt or bandolier, in addition to the rifle. His two assistants together carry 640 rounds loaded in magazines. A loaded magazine weighs 1 pound and 7 ounces. In this way it is possible for every gunner to go into action with nearly 800 rounds of ammunition and not be hampered either by ammunition mules or small hand wagons.

Tactical possibilities of great importance lie in the use of rifles of the Browning type, army officials insist, since it permits troops to go forward to attack with tremendous advantage over adversaries who do not possess equally efficient automatic guns.

One point which is advanced by some of the army officers is that when a Browning gunner meets a detachment of the enemy, he is able to fire aimed shots rapidly from the shoulder in bursts of from 20 to 40, expelled almost instantly, or he may use only single shots, and thus conserve his ammunition if the enemy target is but a single soldier.

There is some doubt, however, of the practicability of firing aimed shots, in bursts. Although the Browning rifle has practically no "kick" as the rifleman uses the term, the series of powerful explosions has a tendency to force the marksman steadily backward, so that he has constantly to brace himself against the push of the butt, which is not conducive to accurate aiming, especially when his body is subject to the vibrations incident to the burst, and the target appears to be dancing wildly around—an illusion with which all machine gunners are familiar. The truth of the matter is, that while it is perfectly possible to fire the Browning from the shoulder, and register hits, the new rifle will most likely be used far more often in firing from the hip, from which position the fire can be sprayed at the target, as a hose is played without reference to the sights. In this way, it is pointed out, most effective use can be made of the gun in "sweeping out" trenches.

While the demonstration at Congress Heights cannot be taken

as a test of durability or reliability of function, the War Department has issued an official statement dealing with previous official trials made with the gun. Concerning trials conducted by the Army Board, the statement says:

"Two of the features of a board test are applying corroding chemicals to the gun, to effect a rusting condition which could not possibly obtain while in the hands of soldiers, and the 'dust test,' in which sharp abrasive dust is blown into the mechanism from a bellows, creating a condition of the gun which would cause a soldier to meet court-martial charges were he to so neglect his weapon. Under these and other prescribed tests the Browning guns were successfully tried out.

"In the official tests of the Browning rifle the individual members of the board fired a number of shots from the hip and shoulder, standing, and from the shoulder, prone and kneeling. The shots were fired by these members without difficulties or malfunctions of any kind, and the heat of the barrel was not such as to interfere with the manipulation of the weapon.

"The gun was then put through an endurance test. In bursts of 500 or 1000 a total of 20,000 shots were fired, the gun being cooled between bursts. During the first 8000 rounds the cooling was performed by plunging the gun into a barrel of cold water. This caused the gas cylinder tube to crack, due to the sudden contraction of the metal. The gas cylinder tube was changed and thereafter cooling was effected by sponging off the barrel with cool water and without recurrence of a cracked tube.

"The total number of malfunctions in the 20,000 rounds was 50, the majority of which were due to causes which have been remedied by the inventor since these tests, and are eliminated from the rifle as it is now being manufactured."

At the Congress Heights demonstration there were present many military riflemen of note, including Lieutenant Colonel Morton C. Mumma, of the General Staff; Major Stuart Wise and Major C. B. Winder, both of the Ordnance Department, and Major Douglas C. McDougall, of the Marine Corps. Tom Davis, of the Winchester Company, where the Browning rifles used in the demonstration were made, was on hand with Captain A. F. Laudensack, who superintended the manufacture of the weapons, and Carl Page, who assisted Laudensack.

The men who did the firing were unanimous in their opinion

that in spite of the "push" exerted by the new weapon when in automatic action, the recoil difficulties to be encountered are not near so great in the Browning as in the Springfield. Although the guns were all equipped with regulation slings, none of the men used the sling as an aid to shooting from the shoulder, the strap being passed around the neck simply to support the gun when being carried and to act as a brace when the gun was fired from the hip.

The first demonstration called for one clip fired semi-automatically from the shoulder, and while only silhouette targets were used at a distance of not more than 100 yards, there being no attempt to mark hits, the condition of the targets immediately after the first clip was exhausted showed that the boys could do great execution against an advancing line. There followed a clip fired automatically from the shoulder.

Then the officer conducting the demonstration called for hip fire, and the demonstrators, rapidly shifting their weapons so that the butts rested just above the right hip, slipped the butts into the aluminum socket provided on each ammunition belt. With the added support given by the sling passing over the neck the men apparently had no difficulty either with the semi-automatic or the automatic fire from this position.

Then came the "marching fire," and the demonstrators, with rifles still at their hips, deployed as skirmishers and started down the range, first firing semi-automatically, and then automatically.

In firing from the standing position—either shoulder or hip fire—the men are noticeably braced for the push of the gun, the left foot being planted well forward and the body braced forward from the hips.

Following the demonstration of the light Browning, several bursts were fired from the heavy Brownings. These guns have the physical appearance of being a combination of the old Colt-Browning rapid-fire gun and the Maxim Heavy. The pistol grip so familiar on the old Colt is present, but the heavy water jacket is of the same general outline as that used on the British weapon.

The Browning machine gun, heavy type, model of 1918, is water-cooled and is operated by means of the power created by the recoil action. It is fed from a cotton belt which contains 250 rounds

of service cartridges. The belts may be rapidly loaded by means of a machine which is a development of the one which Mr. Browning devised some 20 years ago in connection with the Colt gun.

The Government claims for this heavier type of Browning gun advantages in simplicity of construction, rendering manufacturing problems easy, and great endurance. In the Government test, according to an official statement, 20,000 rounds were fired from this gun with only three stoppages, one due to a defective cartridge. In a further test firing was continued with the same gun to 39,500 shots, when the sear gave way. A duplicate gun fired 20,000 shots in 48 minutes and 16 seconds, with a malfunction and with only three stoppages, these being due to defective cartridges.

The gun weighs $34\frac{1}{2}$ pounds, with the water jacket filled. It is fired from a tripod. It is believed to have great tactical value for overhead, indirect, barrage, and defensive firing.

In passing on this gun the testing board reported as follows: "The board is of the opinion that its lightness, simplicity, reliability of function, and endurance are such as to make it superior to any other of the so-called heavy water-cooled type known to the board.

"With certain modifications this gun is applicable to aviation service. When used for this purpose it is stripped of its water jacket and weighs $22\frac{1}{2}$ pounds."

Both the light and heavy guns are the inventions of John M. Browning.

ARTILLERY FIRE AGAINST AERIAL TARGETS. By Sallustio Regii, Major of Artillery. *Rivista di Artiglieria e Genio*, Oct.-Nov. '17. 10,000 words.²

Aerial targets are of three classes—dirigibles, hydroplanes and airplanes. Of these the last named are the most important by reason of their number, and also the most difficult by reason of their speed.

The importance of fire against these targets has become more and more clearly recognized since the beginning of this war. Special matériel for this use is never sufficient, and guns on ordinary mountings of all kinds are continually called upon.

² From International Military Digest, May, 1918.

This kind of fire presents unusual difficulties, due to the speed of the target and the necessity of using time fuses. The method adopted must necessarily be a compromise between two conflicting requirements, accuracy of preparation and rapidity of execution.

In ordinary fire against terrestrial targets the angle of site is small, and the principle of the rigidity of the trajectory generally applies; that is, the readings of the rangefinder, quadrant and fuze-setter agree. With a large angle of site, as is always the case for aerial targets, this condition does not obtain. The interrelations of the various elements of the firing data are no longer constant; for example, with the same actual range, the sight elevation will vary as a function of the angle of site.

Ordinary range tables, then, are useless, since they are calculated on the basis of horizontal range. It is necessary to have an entirely new system of tables, calculated by selecting some one element of the firing data, and arranging the other elements according to the increasing values of this. If, for example, the angle of site is taken as the argument, a separate table is required for, say, every 100 mils change in site, from the horizontal up to the maximum permitted by the carriage, which is generally about 1200 mils. Or, if the tables are based upon the speed of the target, which is more convenient in practice, tables should be computed for the varying angular heights, for every hundred mils; the argument of entrance would be the angle of site.

In this latter system, the distance travelled in a given brief time being determined, each successive angular altitude determines a sight elevation and a fuze setting which will keep the mean trajectory upon the target.

Thus a distinct advantage is gained by discarding range as the prime element, whether it be measured on the horizontal or on the line of site. The angle of site also varies from moment to moment, but it is more readily and more accurately measured at the battery.

But firing data as given by the range tables are not sufficient. The target is constantly and rapidly changing position in all three dimensions, during the time between command and shot, and during the time of flight. Hence we must correct the range table data in such a manner as to follow the target in its motion.

The problems to be solved, then, are: (1) determination of firing data for a particular position of the target; (2) estimation or measurement of the elements of correction necessary to allow for

the travel of the target; (3) development of a system of conduct of fire which shall permit adjustment of fire, or eliminate the necessity for it, and a determination of the practical rules for easy and rapid application of the system.

PREPARED FIRE AGAINST AIRCRAFT

1. *The Ballistic Problem*

Given a target moving in space, if the laws of its motion can be determined, we may determine the point upon which the gun must be laid, and the proper moment for firing, so as to bring burst and target together.

Direct Laying.—The position of the target in space is determined at any given moment by three co-ordinates: angle of site, range and direction. Suppose that we have range tables so constructed as to give us, with site and range as the arguments of entrance, the necessary sight elevation, fuze setting, and deflection. If we then lay directly upon a stationary target, the shell should burst in it. But the target is moving. The problem, then, may be defined as follows:

To lay the gun upon point C, and fire at such a moment that the target and burst will meet at D. The relative position of the two points is determined by the condition, that the target must pass from C to D in the time of flight.

Indirect Laying.—The problem is the same, but we now take deflection from some point other than the target, and deal with quadrant instead of sight elevation. This simplifies matters, in that we may use range table data for the point D, and need not consider C. There is, however, the disadvantage that the gun does not constantly follow the target; hence many batteries use quadrant elevation, but sight direction.

2. *Movement of Target; Assumptions*

A bombing airplane must fly as straight and as uniformly as possible; a reconnoitering plane may vary only within restricted limits. When threatened with a fire attack, the plane manœuvres, which increases the difficulty of adjusting fire; but generally when an airplane has a specific task its freedom of manœuvre is limited.

The problem is complex—to cause a projectile in flight to meet a small and speedy target, whose laws of motion are not accurately known. The system must be one of approximation.

If we consider only the time for preparation to fire, and the time of flight, twenty or thirty seconds perhaps, we may assume that the motion of the target is rectilinear and uniform.

3. *Continuous and Intermittent Fire*

Firing data may be worked out directly, for the probable position of the target at the instant of burst, or indirectly, by applying corrections to the data for the position of the target at or before discharge. In the first case the fire must be intermittent, each shot or group of shots being preceded by a period of preparation. In the second, the fire may be continuous, using the methods of ordinary fire and modifying the corrections as required.

To determine the probable position of the target at the instant of burst, it is necessary to resolve the motion of the target into components. This may be done either along the line of site (change in range), and in the plane normal to it; or in the horizontal and vertical planes.

The former method is convenient for guns using direct laying. The elements may be determined by direct measurement of the range and angle of site. The latter method eliminates the use of corrections to angle of site and deflection; it is most suitable for indirect laying.

The best method of predicting the position of the target is to construct a diagram of its course. If we plot time as abscissa and range or any other element as ordinate, we get a curve from which, by extrapolation, we may predict position. The predicted position will determine one value of the element which has been selected as argument of entrance to the range tables.

The diagram, evidently, should be plotted with elements that may be accurately measured; and it must be so planned that it may be quickly and accurately plotted. This suggests use of site instead of range, and of a rectilinear instead of a curvilinear diagram. This may be accomplished by using a special cross-section paper, in which the intervals between the horizontal lines vary according to the scale of cotangents.

For continuous fire, we determine, not firing data for a predicted point, but corrections to the firing data for an actual point. The diagram may be used for this purpose also, or the corrections may be determined by other means.

For example, if we have ranges taken continuously, the range correction is the change of range during a period of time equal to

the sum of the time of preparation and the time of flight. It is not difficult to design instruments which will give these corrections automatically, for all elements of the firing data, including fuze setting.

4. *Determination of Firing Time*

For intermittent fire this is of prime importance, since an error of two or three seconds may cause an error of several hundred metres. The gun may be fired at the instant the target passes the point C (*supra*), or at the predicted time. Or, better, the time of preparation (which should be constant) having been determined, we may consider the actual interval between shots; the guns may then be fired when ready, without command.

In continuous fire the guns fire individually when ready; time of preparation is of less importance. But in any case it is desirable to reduce it to a minimum. The fire is always based upon prediction, and the shorter the period of prediction the greater the accuracy. The ideal would be to make the interval equal to the time of flight alone, admitting no time of preparation beyond this; since the fuze setting is the slowest operation, this would require the development of a system based upon fuze setting, so that a number of rounds could be prepared beforehand.

DETERMINATION OF DEFLECTION AND SITE CORRECTIONS

I. *Correction of Deflection*

This is equal to the angular travel of the target in the horizontal plane during the time of flight, which may be determined in various ways. One convenient method is direct measurement with a goniometer; it is best to take the readings every ten seconds, and to take the travel for the time of flight from suitable tables or graphic charts.

But this method is not very accurate; a better system depends upon the angle made by the course of the target with the plane of direction, which may be estimated or measured with sufficient accuracy in several ways. Knowing the speed of the target, the range, and this angle, the correction may be calculated by a simple formula, or taken from a chart.

Still another plan is to take this correction from a diagram of the path of the target, plotted as described above. A suitable diagram would be one showing the curve of azimuths of the target every ten seconds.

In final determination of this correction, allowance must be made for cross wind.

2. *Correction of Site*

This correction may be applied practically in any way rendered convenient by the laying instruments used. It is equal to the angular travel of the target in the vertical plane during the time of flight.

The site may be measured directly every ten seconds, and the correction determined by suitable tables or graphic charts. As in the case of deflection corrections, other more accurate methods may readily be devised. When the correction is made by simply measuring the site, it is necessary to remember that if the linear velocity is constant (as assumed) the angular velocity will be variable, the acceleration being positive when the target is approaching and negative when it is receding. Ordinarily, an arbitrary correction of five or ten mils will be near enough for this.

(Continued.)

CO-OPERATION BETWEEN BALLOONS AND ARTILLERY. By Maj. D. R. Hannay, R.F.C. *Aerial Age Weekly*, Nov. 5 and 12, '17. 1685 words. Illustrated.

The balloon service of the Royal Flying Corps is divided into wings, companies, and sections. A section consists of four officers and 90 men and works one balloon. A company consists of two sections. A wing consists of all the companies in any one army. The balloon now in use in the field has a cubic capacity of 950 cubic metres and is capable of lifting two observers to a height of 4000 feet. The majority of balloons in France are stationary, at an average distance of about 6000 yards behind the line. As regards observation of fire, the work of the balloon observer is chiefly with the heavier pieces of artillery, such as the 6-inch howitzers and the 4.7-inch guns, 8-inch howitzers and the 60-pounder guns, 9.2-inch howitzers and the 6-inch guns, 12-inch howitzers, 15-inch howitzers.

The balloon section is connected by telephone to all the batteries with which it is likely to work. An advantage which a balloon has over an airplane, and one that compensates for a great many of the disadvantages, is that the observer in the basket can talk direct by telephone to the battery commander on the ground, and does not have to confine himself to a limited code as used on the wireless. When the balloon is in the air, it is connected by a telephone cable

to the winch, which is, in turn, connected by aerial line to the camp exchange, and tapped in on this line is the chart room of this section, where all the map work and the arranging of shoots with batteries are done. The work chiefly allotted to the balloon consists of:

1. Destruction of villages;
2. Destruction of strong points behind the line;
3. Registering on cross roads;
4. Registering on exits from villages, woods and ravines;
5. Counter-battery work.

Artillery officers will fully realize that it is not advisable to give observations as regards range until the battery drops a shell fairly close to the balloon-target line. Then, when the observer is able to check the range, the battery commander will register by the bracket system, always remembering that to keep his shells falling on the line balloon-target, it will be necessary for him to give deflection for each increase or decrease in the range ordered on the guns. The chief object of the observer is to describe to the battery commander briefly, but clearly, the position of each shot. When the balloon goes up and the observer is ready, and can clearly see the target, he sends the following information through the chart room to the battery:

1. Position of balloon.
2. Height of balloon in feet.
3. Strength and direction of wind.
4. When he is ready to observe.

The battery will then send to the balloon:

1. Time of flight of shell.
2. Nature of projectile.
3. When they are ready to fire.

When both observer and battery report they are ready, the battery will send, "Stand by," and the observer will then give, "Ready." As soon as "Ready" is received by the battery, the guns will be fired at once and "Gun fired" will be sent to the balloon. When the battery sends "Gun fired," the chart room officer sets his stop watch going and says, "Gun fired," to the observer, then, at the correct time: "10 seconds to burst"; "5 seconds to burst"; "4"; "3"; "2"; "1"; "Burst." This relieves the observer in the balloon of watching with his glasses the whole time. When he hears "10 seconds" he gets ready, and at "5" puts them up. First impressions are always best in balloon observations. Let us say the first observation is:

"First shot—30 minutes left."

"Short " or "over" is not given, as, the shot being wide of the target, the observer cannot say for certain. "Unobserved" should always be sent if the actual burst is not seen.

THE TACTICS OF THE MACHINE GUN. *Jour. U. S. Cav. Assn.*, Jan. '18. 15,000 words.³

Machine-gun fire is concentrated infantry fire. It can be concentrated on a single oval area, or by traversing the gun it can bring sweeping fire to bear over a wide front. Thus the machine gun gives to a small group of men the power of either keeping up a slow, deliberate fire or delivering sudden gusts of fire, turning it rapidly on a diversity of targets or directing it upon one narrow space of ground, or again sweeping the front with a rain of bullets, called by the French a "mowing down" fire.

The fact that only a few men are engaged in operating a group of guns, and that each gun is fired from a fixed support with mechanical control of elevation and direction, allows less scope for the errors introduced into infantry fire by the human elements. A body of infantry firing the same number of bullets will introduce many errors due to excitement, the taking of a new aim each time, and the proximity of the enemy. The machine gun, because it is a machine, and because it is aimed by one man, delivers an ideally controlled fire.

The machine gun has at least the power of fifty rifles, probably more nearly one hundred. It requires only a front of a few yards, while a hundred rifles in the firing line in the first stages of an attack may cover nearly an eighth of a mile. It is easier, therefore, to conceal it from view and to secure for it effective cover against fire. As it fires from a fixed support it not only keeps its target and range better than the best riflemen, but it has a longer effective range. All of these qualities tend to make the machine gun invaluable for delivering a sharp blow. Its gust of destructive fire has a peculiarly nerve-shaking quality and the effect is all the more demoralizing when the gun is concealed.

For indirect fire the machine gun is far superior to infantry. If the distance and direction to the unseen target are known, and it is within reach of even the longest range of the gun, the target can certainly be hit if the trajectory clears the intervening obstacles. It

³ From International Military Digest, May, 1918.

it not a matter of chance but of certainty, and the bullets will fall upon the same patch of beaten ground as long as the gun is kept in action.

In the early days of machine guns it was objected that the gun would consume ammunition at a tremendous and even prohibitive rate, and would be liable to be put out of action by the mere want of cartridges. Experience shows that a machine gun properly handled is at work in most cases only a few minutes at a time. Fire is used when it will tell heavily. The winning of battles now depends to a great extent on the ammunition supply being previously arranged in a methodical manner with a definite view to the intended operations. This is eminently true of the machine-gun arm.

Another drawback has been the liability to unexpected stoppage. For this reason the machine guns always work in couples. Two guns form the smallest tactical unit, and we have seen that two guns represent a very considerable fire power.

The drawbacks enumerated are, therefore, met by a carefully organized ammunition supply and the working of guns in sections of two each. Machine guns are out of action while on the move, although in well-trained hands they can come into action instantly. Therefore, once the guns are in a good fire position they should not be moved without reason, the movements should be as rapid as possible, and the new position should be selected before the guns are moved.

The machine gun has no place in a fight at close quarters. Therefore, during the attack it keeps in action as long as its fire can be maintained without danger to the assaulting troops. When the fire has to cease the guns are got ready to push forward and assist in holding the captured position against a counter-attack. On the defensive the guns are kept in action till the last moment, but during the actual struggle for the position, and when the attacking force is penetrating into it, the machine guns should be withdrawn and held ready, either to cover the retirement or to be pushed forward to reopen fire on the retiring enemy, if the assault is repulsed.

The machine gun may often be sacrificed to cover a retirement. The weapon is so easily manufactured, and should be available in such large numbers, that the loss of a few guns is not a serious matter. It is much more difficult to replace the trained officers and gunners of a section than the guns themselves.

A practical working system of machine-gun tactics must be

based upon the effect to make the most of the characteristic powers of the weapon. If it is to be used effectively, it must be in the hands of officers and men thoroughly familiar with their guns and imbued with the enterprising spirit that will seize and make the most of every occasion for their intervention in the fight.

The machine gun can range up to 2800 yards, and in properly trained hands can do good work at this extremely long range. The height of the trajectory at long range favors indirect and overhead fire by making it a simple matter to clear intervening obstacles and to fire safely over the heads of one's own advanced troops. Experience of the machine-gun work in the entrenchment battles of the western front shows that there are plenty of means of using the guns at even the longest range.

In most of our training camps it is laid down as a general rule that the effective ranges of the machine guns lie between 1000 and 500 yards. This refers to machine guns acting with infantry and pushing forward with them in the advance. The use of the guns at longer ranges is for covering fire over the heads of the infantry they are supporting, or directed against the enemy's supports and the lines by which he is bringing up his reinforcements.

There are now two kinds of machine-gun tactics: the tactics of long range, rendered possible by the conditions of the entrenchment battle, and the tactics of medium and short ranges, which have their place in the manœuvre battle in the open, and the assault during the entrenchment battle.

Long-range fire is rendered practicable and effective in the entrenchment battle by the fact that the enemy's position is fixed and easily defined. Systematic aerial reconnaissance renders it possible to map out most accurately the position of the advanced trenches which form the enemy's firing line, the trenches farther back, where he keeps his supports and reserves, and the lines by which these supports and all supplies of ammunition must be brought up to the advanced trench. Reconnaissance of the enemy's position can reveal the areas where it is vulnerable to machine-gun fire, and this fire can be directed on these areas with certainty. Thus the fire from the guns will harass the enemy, impede his movements and inflict loss upon him.

It is obvious that the longer the range the more chance there is of selecting lines of trench that are open to enfilade. The machine gunner can pick out lines of trench far away to the right or left,

on which he can bring diagonal indirect fire. The beaten zone is so moderate in extent that several guns have to be used together to sweep a given extent of ground either in frontage or depth, though the single section of two or four guns is sufficient when firing on a narrow target, such as a communication trench.

In the entrenchment battle, the position for the guns at the outset will have been deliberately chosen beforehand, as well as points in the advanced line to which guns will be brought under cover by the communication trenches. There will be abundant ammunition, the choice of targets will be easy and the ranges can be fixed with absolute accuracy. They may also help in the destruction of the wire entanglements by cutting down the supporting posts.

Once the assault is launched, the guns in the advance trench push forward after the first wave, their most important work being to organize for the defense of the captured ground. A captured line will usually have an irregular front, some portions lying well to the front of the main line, and these advanced points will afford good positions for bringing the enfilade fire of machine guns to bear on the counter-attack.

In the defence, with a comparatively small number of machine guns installed in carefully concealed and thoroughly well protected positions, provision can be made for sweeping with flanking fire long fronts of the advanced trenches, and at the same time guns can be used from positions farther back to bring a high angle fire to bear upon the supports of a hostile attack. The mobility of machine-gun sections provides ready means of reinforcing any point of the front that is attacked.

In manœuvre warfare the most important work for the machine gun will be to support the infantry attack. Besides the long range covering fire, it will be well to have machine-gun companies accompanying the infantry in the attack, in order to increase their fire power and give them the advantage of suddenly concentrating an intensely powerful fire upon a given area in the hostile line when the opportunity offers. Now that machine guns are being multiplied in numbers in all armies, there will usually be a sufficient number so that some can be held with the reserve. This reserve of machine guns does not represent fire power left idle, but it should be classed with the infantry supports and reserves kept in hand to be used to reinforce and carry forward the firing line.

In case of the temporary or complete failure of the attack, the machine guns will have to do their utmost to cover the reorganization or retirement of the infantry they are supporting. Some guns will be used to create a screen of fire between the infantry and the enemy; others will use high-angle fire against the reserves which the enemy is bringing up for the counter-attack. In a prolonged retirement a rear guard should be well provided with machine guns. The best plan is to divide the machine-gun force into two portions, one of which will be in action while the other is taking up a second position farther to the rear.

In the case of cavalry against cavalry, the action of machine guns will be analogous to that of horse artillery. They will endeavor to take up a flank position, from which they can bring their fire to bear upon the enemy's cavalry while their own cavalry is advancing to the attack. The guns will have to provide for their own protection, and will often be able to take up a position where they are practically safe from mounted attacks.

Armored cars have provided a new field for machine guns. As a rule the heavier type of car, in which the gun is permanently mounted in a kind of turret, will operate on the roads. It can give invaluable support to patrols and detached parties, the men working the gun being themselves fairly safe from rifle and machine-gun fire. The drawback of the car is that it is rather a prominent target for artillery. In another type the gun is merely carried up by the car and is then taken out and placed in position.

Motor machine guns have been successfully used to close a gap in a line or support troops who are rapidly driven in. In covering a retreat along a good road they would be invaluable. Their normal work, however, is to support patrols and advanced parties, to operate against enemy patrols, and to form an efficient mobile reserve. The heavy motor car has the advantage that, besides carrying the gun, it can convey a large supply of ammunition, and is thus an independent unit.

Machine guns have been used successfully against airplanes during the present war. Their widest use has been, however, by the airplanes themselves. It is evident that the machine gun, which absorbs its recoil in actuating its mechanism, is the ideal weapon for this purpose. Rifles have been used, but the machine gun is far superior. The rapidity of its fire increases the chances of a really successful hit, and the gunner has a better chance of damaging a

hostile airplane than if he were firing from the ground. He can hope to obtain a position from which he can bring his fire to bear on the vulnerable points in a direction from which more than one of them will be within his possible line of fire, and he can close to an easy range.

Machine guns are said to be mounted on some of the German aircraft on a platform on the top of the body of the ship, with a view to supplying fire effect against hostile airplanes.

PATROL WORK IN FRANCE *

A member of the Regular Army on duty with an Infantry regiment of the American Expeditionary Forces in France in writing to the Army and Navy Journal gives the following facts relative to patrol duty: "I went out on two patrols, the night being bright moonlight on both occasions, and we took many chances incident to the work. The first time we left our lines was about twelve P.M. and we crawled practically all the way across No Man's Land which, at our point, was about one-half mile wide, and we took about two and one-half hours to get there. We had to cross several old lines of trenches, a road several feet higher than the surrounding country, then a small brook which we jumped, and finally we came to a large creek not fifty yards from the German trenches, which two of our officers crossed where an old mill was once located. They scouted around the remains of a town where the Germans have machine gun implacements, and when they got back we returned to our trenches without being discovered by the Germans.

"The next time we went across No Man's Land at nearly the same point, and when we got to the old trenches we stayed in them a few minutes. Two Germans crossed them to the right of us, and we formed a skirmish line and chased them toward our lines, but they got away from us as we couldn't fire on them in No Man's Land for fear that the Germans would open up on us with machine guns. We formed our patrol again and when we started to cross the road our points discovered a German patrol that was trying to ambush us. They hurried back and the Germans opened fire on us with automatic rifles and ordinary rifles. We were behind the road and were safe from rifle fire. We didn't open fire on them as they so greatly outnumbered us and were directly in front of their own lines, and eighteen men could hardly attack the German line. They

* From Army and Navy Journal, May 11, 1918.

stopped firing in a couple of minutes, and we waited behind the road hoping they would try and cross it, but the Germans know the land too well to try and attack us where we were. After we saw they wouldn't attack us we went back to our own trenches and we were hardly out of the first line when the artillery opened. Outside of patrols there was very little doing except a few shots from German snipers, but they didn't get anybody. We will be going back in the trenches soon again. They didn't trouble us any with gas."

BRITISH ARTILLERY LOSSES⁵

The first official British statement as to the losses of the British army in artillery and machine guns during the German offensive that began on March 21 was made by Winston Churchill, Minister of Munitions, in Parliament, on April 25.

"We lost," the Minister said, "nearly a thousand guns by shell fire or capture; between 4000 and 5000 machine guns have been lost or destroyed and the quantity of ammunition, apart from that which has been fired and that which has been lost in the dumps, amounted to something between one and three weeks' total of manufacture. Other war materials have been used or lost in a great variety of classes and on a similar scale, but by the end of last week (*i.e.*, week ending April 20) all the losses had been made good and in many cases more than made good.

"Vast quantities of small-arm ammunition have been lost or left behind, but, great as the demand has been, the expenditure in the past month did not exceed the maximum potential capacity of the British factories, without touching enormous reserves which had accumulated against such a contingency. The wastage of rifles was very great, but the losses were quite easily and promptly made good. Our preparations had contemplated a period of supreme battle intensity from the third week of February instead of from the third week of March, so we are at present from one to three weeks to the good.

"Those calculations allowed the artillery to fire during the whole fighting season a considerable heavier volume of shells than was expended weekly during the offensive battles of last year, and more than double the volume of shells fired during the terrific bombardment which characterized the Somme offensive of 1916. They also provided for the carrying forward into 1919 of sufficient reserves to allow the British total to mount one step higher than in power and

⁵ From Army and Navy Journal, May 11, 1918.

intensity. In fact, barring unforeseen circumstances, our supply of munitions would enable us to carry on a battle at the supreme pitch of intensity until winter without compromising our requirement for 1919. This is despite the fact that a hundred thousand men were taken from munition factories for service in the army."

Referring to the German War Minister's claim to the capture of more than twice the number of guns than he (Churchill) had announced, Mr. Churchill said that the German claim was a grotesque exaggeration and untrue. But if it had been true he believed that he would still have been able to say that the losses in guns had been made good. Not only had the machine guns been replaced but the Munitions Ministry had placed at the disposal of the air and ground services more than twice the number of guns lost or destroyed in battle in France.

OUR ADVERTISING POLICY

The advertising policy, to which the GAZETTE is committed by the unanimous opinion of the Board of Control, excludes any advertisement of an obnoxious or fraudulent article.

That this policy has been scrupulously followed from the initial number of the GAZETTE will be apparent on reading the advertising sections. No other policy is defensible. Subscribers may patronize our advertisers with confidence in their integrity and services; advertiser are protected against association in the advertising section with fraudulent concerns.

We hope to impress all subscribers to the GAZETTE with the desirability of patronizing our advertisers when the need of any article or services of the nature they advertise arises. The assurance that this will be done will hold advertisers and attract other desirable ones.

The GAZETTE reaches officers and men only whose profession requires the purchase of stores and equipment incident to the military and naval needs. The advertiser suffers no dead circulation, as every reader needs his wares.

Particular attention is invited to our new advertisers.

J. B. Lippincott Company enters the field of Marine Corps advertising with this issue of the GAZETTE. This company likewise has undertaken the publication of the MARINE CORPS GAZETTE until further notice.

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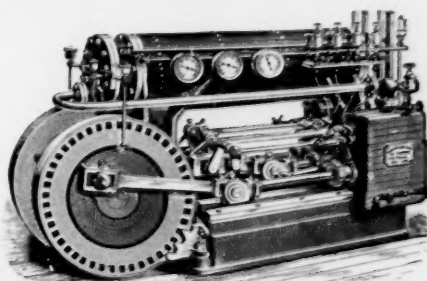
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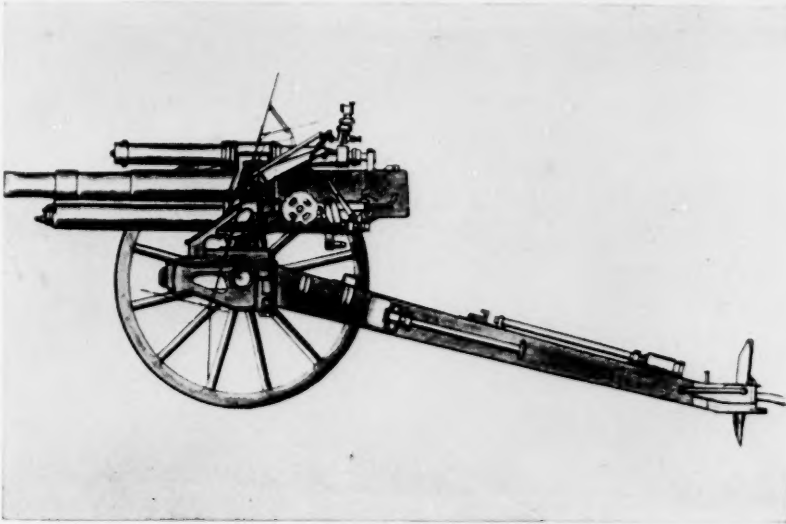
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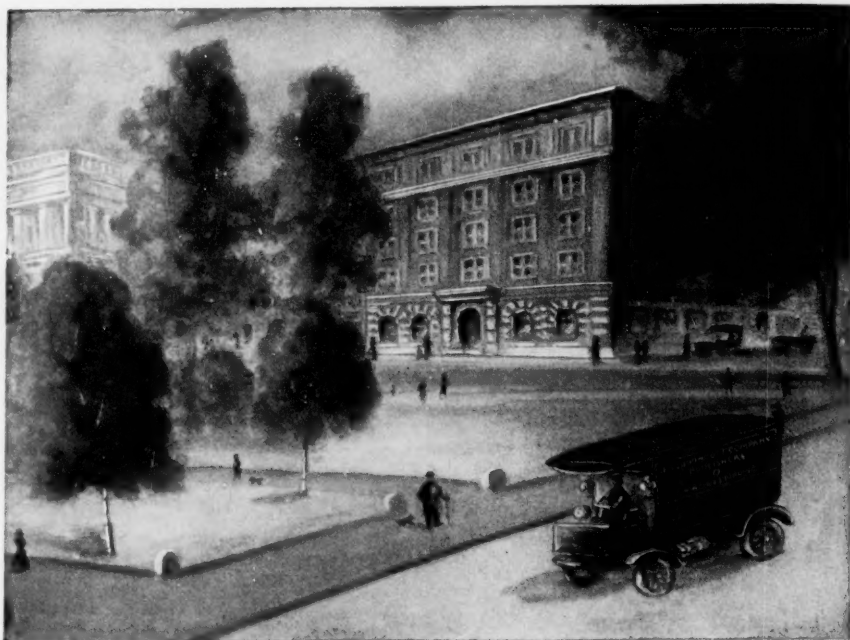
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The danger to the sensitive membrane of the ear exists wherever firing of any kind occurs. On the rifle range, in machine-gun practice, in the artillery as well as with the heavy guns of the navy, the violent shock is a constant menace to one's hearing.

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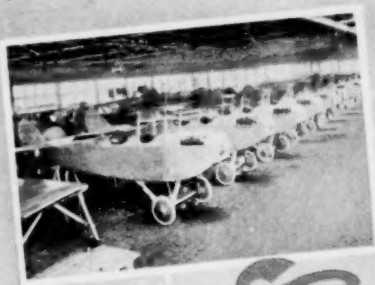
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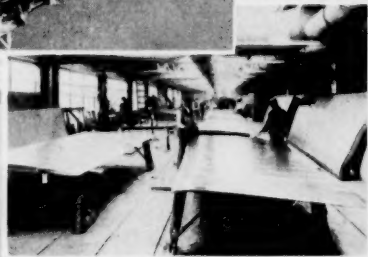
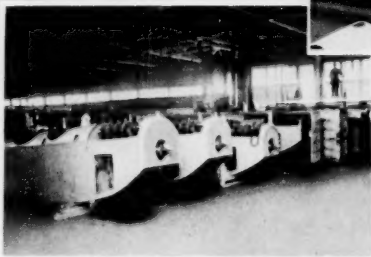
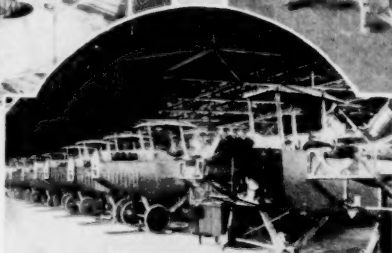
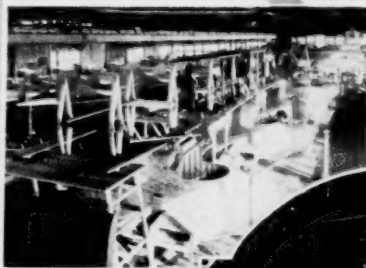


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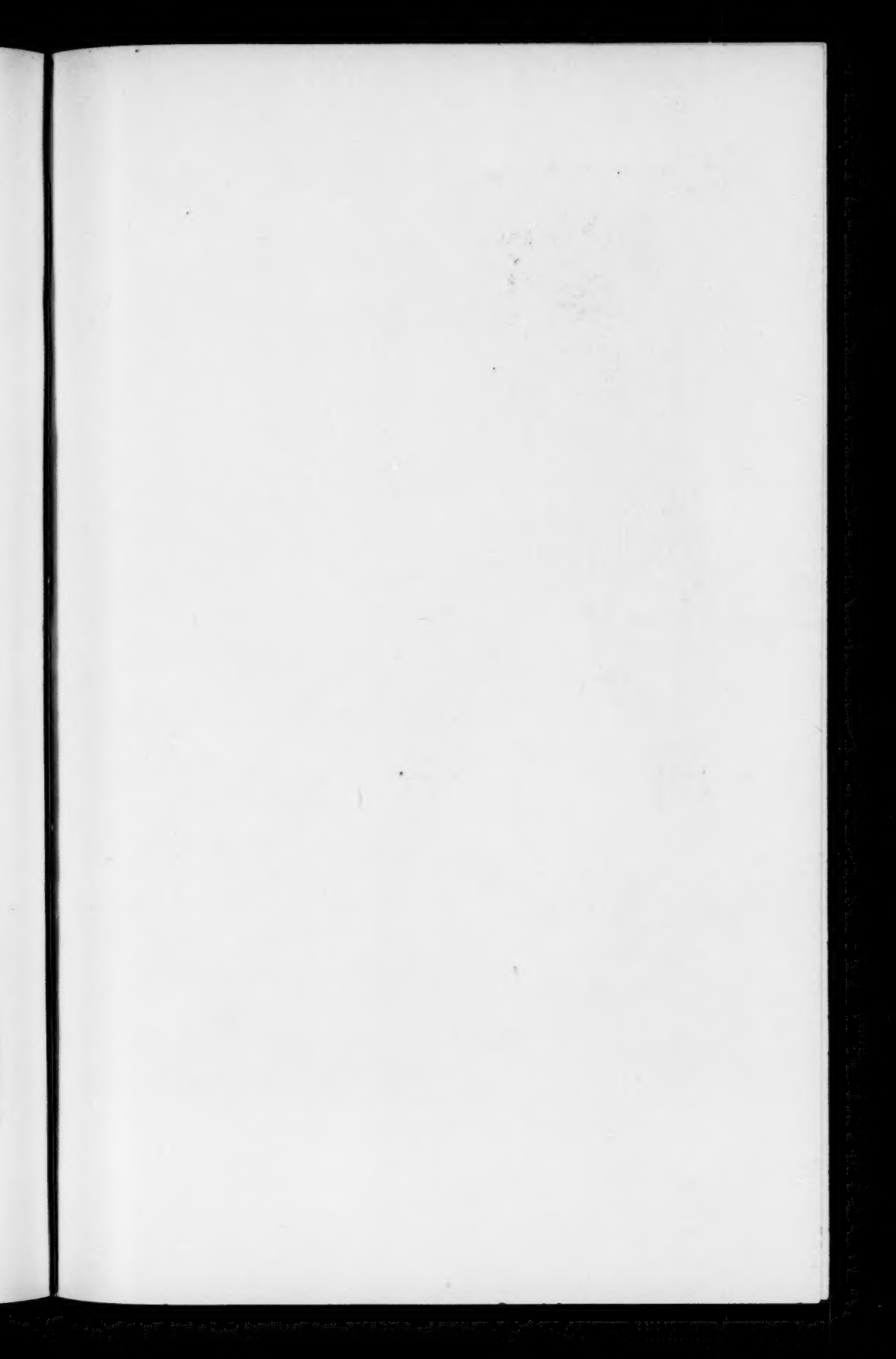


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